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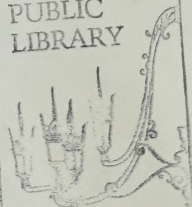


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Red Line Extension - Northwest  
58 Day Street, W. Somerville, MA 02144

August 28, 1980

V. Lloyd Jameson  
Curator/ Government Documents  
Boston Public Library  
Boston, Ma.

Dear Mr. Jameson,

Your letter requesting back copies of the "Red Line News" was referred to me by MBTA Librarian George Sanborn. Unfortunately, copies of several editions of the newsletter are not available, so I have included all that are and apologize for the lack of availability of several issues. I have added your name and address to our mailing list and will see that you receive copies of future editions.

Thank you for your interest. Also attached are two reprints of magazine articles that were written about the project by journalists for "New England Construction" magazine and the former "Boston Journal".

Yours sincerely,

*Charlene Pizzo*

Charlene Pizzo

Special Asst. for Public Info.-  
Red Line Northwest

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# Red Line News

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Number 3

## Harvard to Alewife

April 1977

### Schematic design completed.

Schematic designs for the four stations from Harvard to Alewife have been completed by the station architects and reviewed and accepted by the MBTA.

Prior to MBTA approval, various alternative schemes were developed and presented to the station Task Forces and to the community at large for discussion and endorsement. Through these discussions, the possible choices of station configuration, entrance and exit locations and connections between mezzanine and station were narrowed down and worked into a single scheme acceptable to the community. At the same time, the architects and engineers have been working out the less visible, but equally important, standards for structure, ventilation and safety.

In general, the station designs which have emerged are simpler and easier to use than the earlier schemes in the Environmental Analysis Report (EAR) and the Draft Environmental Impact Statement (DEIS). Both Porter and Davis Square now have one central mezzanine instead of two at the station ends. In Harvard

Square, on the other hand, where the main mezzanine has to be at one end of the train platform, a secondary mezzanine has been added to make access more convenient. A good deal of thought is being given to street level improvements around all of the stations.

At Alewife, the garage has been reduced in height to five levels and stairs and escalators have been added to make it possible to get down to the station mezzanine from almost any place on the ground floor of the garage without crossing the path of a car or bus. The direct access road from Route 2 has been considerably reduced in size and number of lanes to minimize its impact on the Alewife Brook Reservation.

### Deeper tunnel is likely.

The most significant change which has been proposed is the deep tunnel scheme. The EAR described and evaluated a tunnel which ran 10' to 35' below the surface all along its length. Geological exploration during pre-grant engineering showed that between Porter and Davis Square there was accessible bedrock overlaid by a thick layer of compact glacial

till. From all points of view, it is better to tunnel through rock and till than through soft ground: construction is faster, quieter and more predictable; settling of the ground above - which can be expensive to control in soft ground - is much less of a problem in rock; and the rock is a natural muffler for noise and vibration from the trains. Bechtel, the engineers for the tunnel, began to investigate the possibility of making the tunnel deeper - 100 feet below ground at Porter Square.

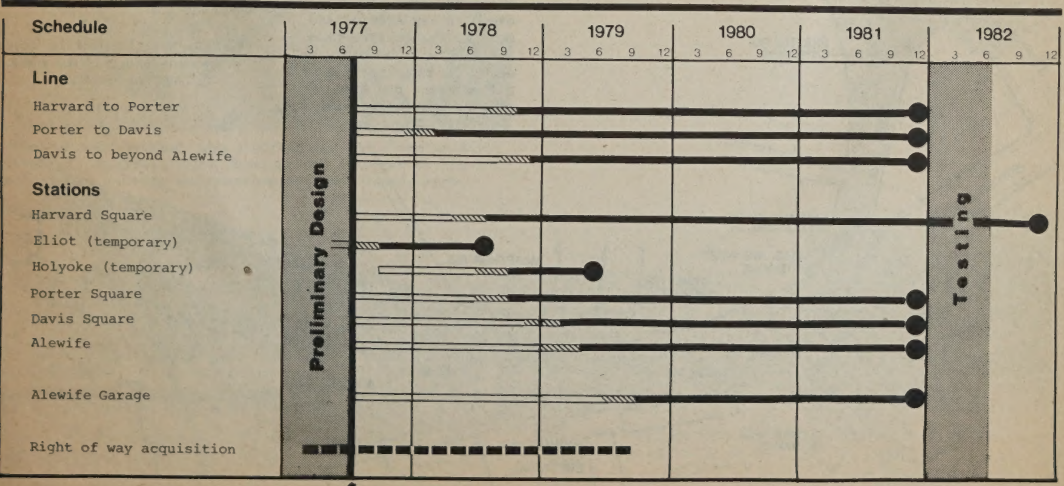
Porter would be the only station affected by the decision to lower the alignment. The tunnel has to connect with the existing tunnel at Harvard Square and with the shallow cut-and-cover segment at Davis Sq. The station architects, Cambridge Seven Associates, working with the tunnel engineers, confirmed that a deep station could be built with much less disruption at street level than a shallow one. Despite the depth, the station will be convenient and easy to use. There were potential problems with long stairways and escalators, but these were overcome by the design.

The MBTA took the deep tunnel idea to the public - the cities of Cambridge and Somerville, to the Porter Sq. and Davis Sq. Task Forces, to the Porter Sq. merchants and to other community groups - and the reaction was favorable. The community found the potential advantages very convincing and heartily endorsed a continuation of the design and engineering effort. It is the deep tunnel scheme which is being reviewed by the MBTA. The exact location of the tunnel and the cost will not be determined until more is known about the rock south of Porter Square (earlier geological studies did not go deep enough), but the deeper tunnel appears entirely feasible even under the most pessimistic assumptions.

### What happens next?

The MBTA is now reviewing the comments received on the Draft EIS and is making changes in the project plan so that the Final EIS will respond properly to the comments received. The MBTA's revised plan will be submitted to UMTA; UMTA will review it, and then print and circulate the Final EIS.

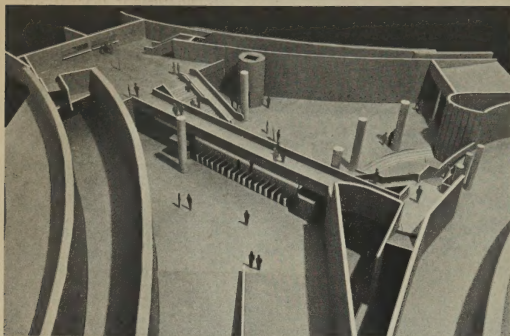
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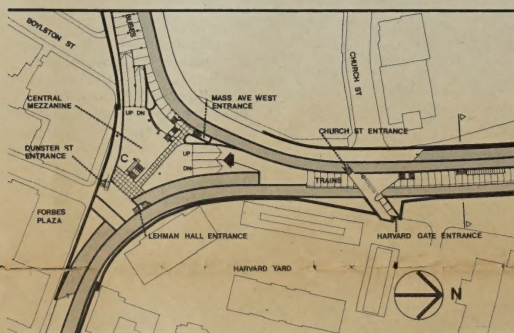
↑ Probable date of UMTA grant. (Notice to proceed with final design.)  
final design ——— bidding ——— construction ——— operation ●



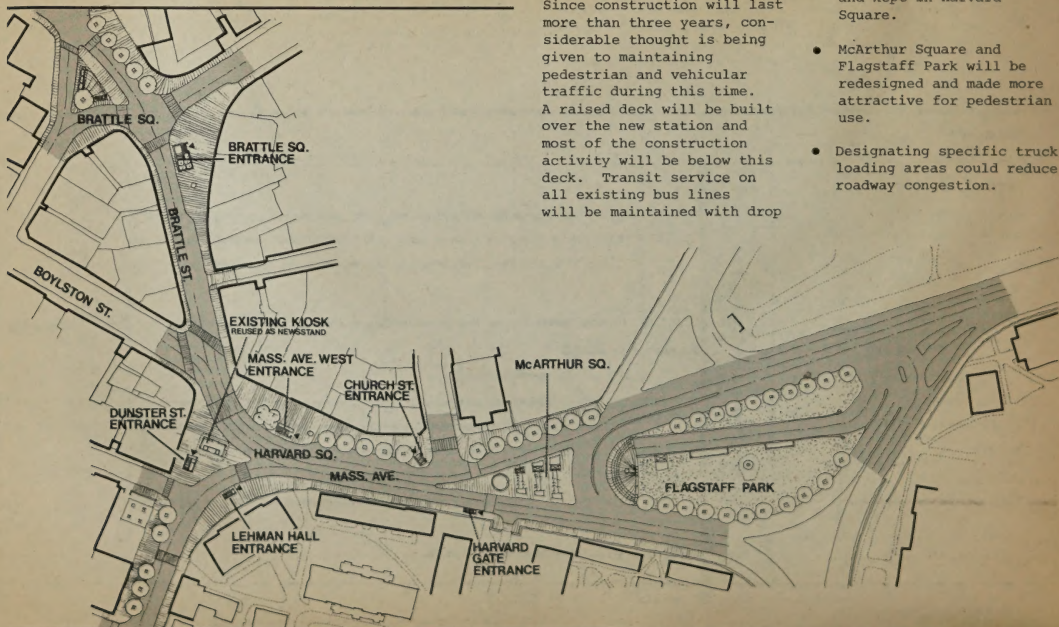
# Harvard Square Station



Model of station mezzanine. The ramps in the foreground are coming from the train platforms; the opening at the far right leads to the bus ramps. The objects lined up under the bridge are turnstiles.



Plan of station mezzanine. (Arrow shows the viewpoint from which the photograph at top was taken.)



Street level plan: Harvard Square after completion of the new station.

The new Harvard Square Station will have two train loading platforms and two bus loading platforms. It should be much easier for passengers to find their way around the new station than around the present one. They will enter from the street into a new two-story area, the central mezzanine. On one side of the central mezzanine there will be ramps to the Red Line trains and on the opposite side there will be ramps to two bus loading platforms.

In addition, there will be a second mezzanine under Mass. Ave., near Church St., with entrances from Church St. and from the vicinity of Harvard Gate. This will provide convenient access to the subway for people arriving from the north end and from Harvard Yard.

From Brattle Square, another entrance will lead to the upper bus platform. There will be space for shops along the length of the upper bus platform. During foul weather, passengers will be able to walk underground from Brattle Square to the central mezzanine and the train platforms.

The station is being designed by the Boston office of Skidmore, Owings and Merrill.

## How will things work during construction?

Since construction will last more than three years, considerable thought is being given to maintaining pedestrian and vehicular traffic during this time. A raised deck will be built over the new station and most of the construction activity will be below this deck. Transit service on all existing bus lines will be maintained with drop

off points convenient to one of the two temporary Red Line stations at Eliot St. and at Holyoke Center. Some disruption will be inevitable but every effort is being made to minimize inconvenience and to complete construction as rapidly as possible. Improvements to both the Harvard Square Station and the street level should be well worth the wait.

## How will Harvard Square look?

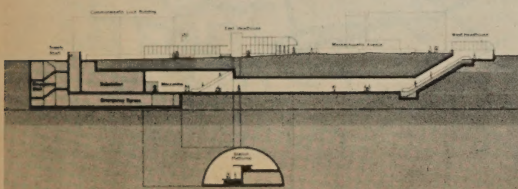
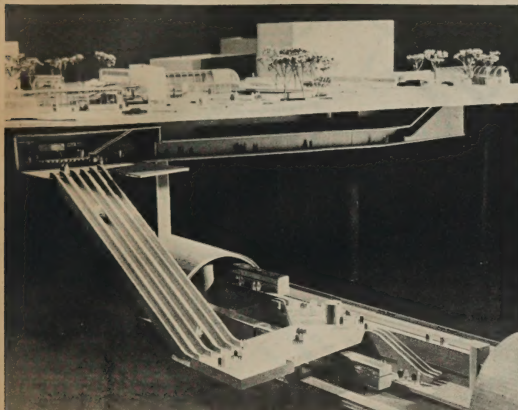
Construction of the new station will require the excavation and rebuilding of parts of Mass. Ave. and Brattle St. These areas could be improved while they are being rebuilt. Sidewalks and parks could be expanded to relieve congestion.

The street plan shows how Harvard Square could look after the new station has been completed.

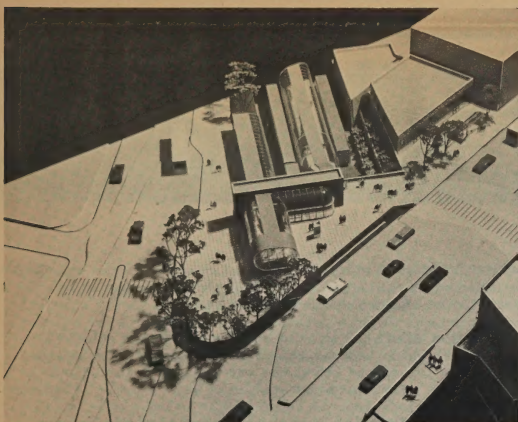
- A pedestrian peninsula will be developed in front of the Cambridge Savings Bank. The main entrance and newsstand will be located here. Through traffic headed west from Mass. Ave. to Brattle St. will be diverted by the peninsula.
- Sidewalks will be widened at Mass. Ave. (west side) and Brattle St. (north side).
- The kiosk will be reused and kept in Harvard Square.
- McArthur Square and Flagstaff Park will be redesigned and made more attractive for pedestrian use.
- Designating specific truck loading areas could reduce roadway congestion.



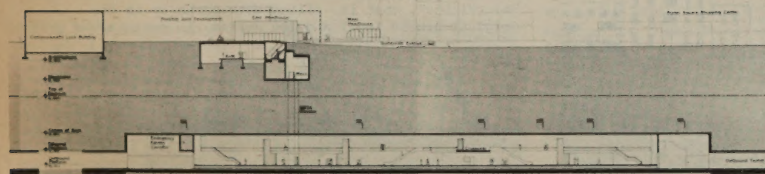
# Porter Square Station



Cutaway model of station (top) and cross section reveal passage under Massachusetts Ave., mezzanine and train platforms. Model also shows the long escalators.



Model of east entrance and a portion of the commuter rail platform. Minimal "joint development" is shown on the lot between the station and Commonwealth Lock (upper right).



(Left) Section through Red Line platform. Crossover from escalator landing is at the middle. (Right) Another view of

## New scheme: Deep station.

Porter Square station will be the junction between the Red Line and the Bedford branch commuter rail line which the MBTA has acquired from the Boston and Maine railroad. It now appears that Porter Square will be the deepest station in the MBTA system, with platforms 100' below the surface.

Although novel here, deep stations are in use in subway systems in other parts of the country and abroad. In Washington, D.C., the Metro's Dupont Circle Station is approximately the same depth, and several more deep stations will be in operation by this summer.

During the past three months, with the participation of representatives of the city and of the community, the consultant team has designed the station illustrated here. The plan combines a deep tunnel and boarding area with a shallow mezzanine, retaining the best features of the original scheme. The shallow mezzanine makes it possible to keep access from the street direct, to keep the connection between the two lines simple, and to have a skylight.

Decking over a portion of the commuter rail right-of-way to the east of Mass. Ave. creates a small plaza at street level. This plaza will contain the main entrance to the T and a direct entrance to the commuter railway. Another entrance to the system will be provided on the west side of Mass. Ave. and connected

to the station mezzanine by an underground passageway.

Both entrances to the Red Line will be equipped with two escalators and a stair; the plaza entrance will also have an elevator. The direct entrance to the commuter rail will have an elevator and a stair.

The station mezzanine is divided by the turnstiles (fare collection) into a "free" and a "paid" zone. The present configuration allows for free pedestrian passage under Massachusetts Ave. and for the separate collection of fares for the Red Line and the commuter rail. It will be possible to provide free transfer between the lines in the future by rearranging the turnstiles.

From the mezzanine, three escalators and an elevator descend to the Red Line platforms. The escalators come down beside the tunnel and passengers cross to the center platform by a bridge over the outbound track. The station has a split level platform to accommodate the bridge.

The City of Cambridge and the Porter Square Task Force Working Committee are presently looking into the possibility of joint development on the site above the tunnel on Massachusetts Ave. between the new plaza and the Commonwealth Lock Building.

Architects for Porter Square Station are Cambridge Seven Associates, of Cambridge.

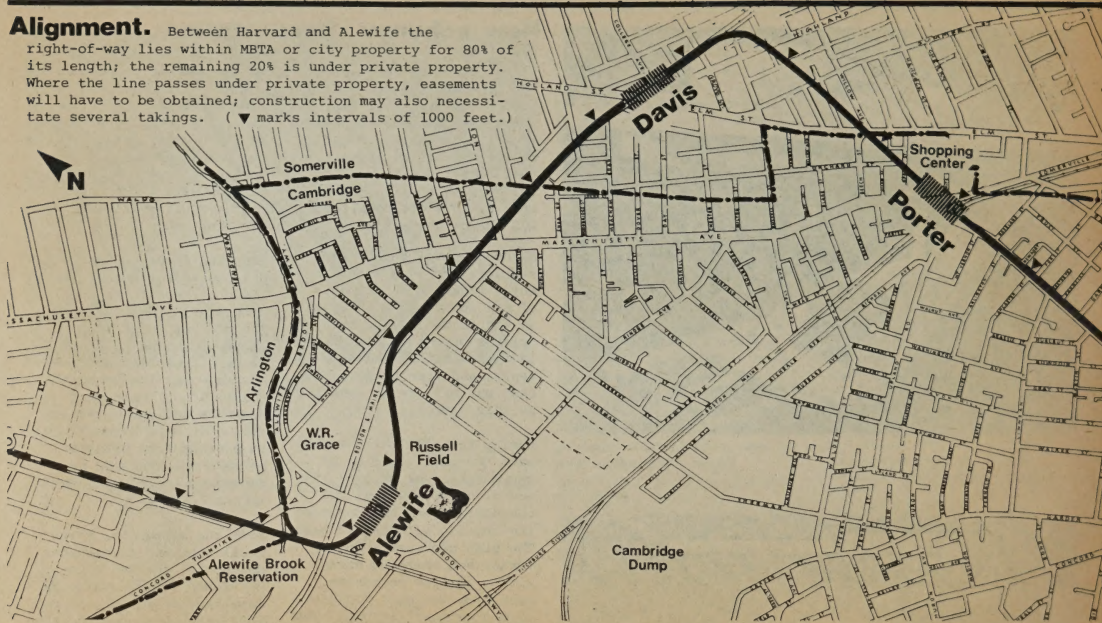


the east entrance with the addition of a larger joint development building above.

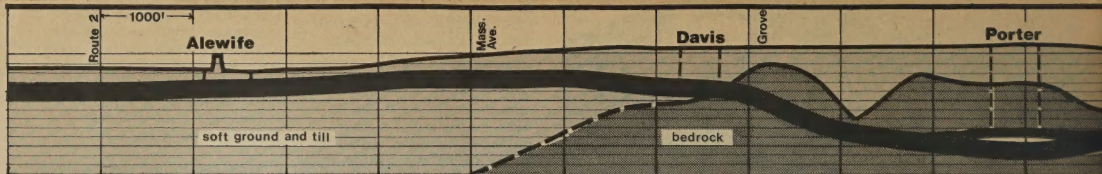


# Red Line - Harvard to Alewife

**Alignment.** Between Harvard and Alewife the right-of-way lies within MBTA or city property for 80% of its length; the remaining 20% is under private property. Where the line passes under private property, easements will have to be obtained; construction may also necessitate several takings. (▼ marks intervals of 1000 feet.)



**Profile.** The tunnel enters bedrock about midway to Porter Square and leaves it just east of Davis, near Grove St. The cut-and-cover segment begins at Davis Square Station. At Harvard and Porter the track is on two levels. (The vertical scale is exaggerated X 10; actual inclines never exceed 4% or 1' rise in 25' length.)

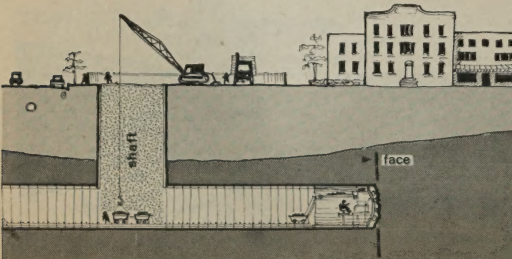


## What do they mean when they say ...?

**alignment**, an engineering term meaning plan or route.

**bedrock**, solid rock beneath the soil; ledge.

**bored tunnel**, a tunnel excavated underground ("driven"), with access from the surface through shafts at intervals along the line. All men, machinery, construction materials and excavated muck or rock must pass in or out of the tunnel through the access (or construction) shafts. Tunnels are usually bored rather than cut-and-cover when they are deeper than 40' or when it is necessary to avoid disturbing the surface above the tunnel.

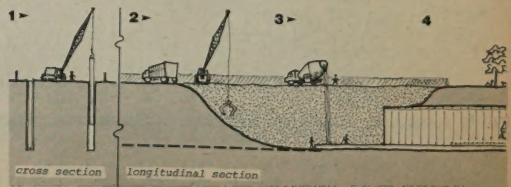


**boring, drill hole**, a long, narrow hole drilled into the earth to study the subsurface geology. Soil samples are identified as they are removed and a record is made of the kind of soil or rock occurring at various depths.

**building protection program**, precautionary measures taken to prevent or minimize damage which might be caused by settling of the ground during construction.

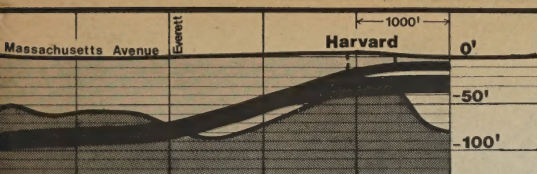
**construction shaft**, a shaft descending from the surface to the tunnel which becomes the starting point for tunneling, and which is used to bring men and materials in and out of the tunnel. See "bored tunnel".

**cut-and-cover tunnel**, a tunnel excavated from the surface. (1) Parallel retaining walls are built; (2) the earth between the two walls is excavated; (3) the tunnel is built within the "cut" (if the retaining walls are of concrete, they may become the walls of the tunnel); and (4) the space above the roof of the tunnel is "backfilled", that is, filled with earth up to the original ground level and the surface is restored.



The trench may be covered or "decked over" while construction is going on, permitting street activity to continue with only short interruptions for digging and restoring the surface. Cut-and-cover construction is appropriate for relatively shallow tunnels.



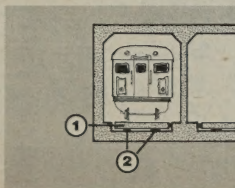


**decking**, a cover above an excavation; it may be of timber, metal, or concrete. Temporary decking is generally used to carry normal pedestrian and vehicular traffic during cut-and-cover construction or during work on underground utilities. When construction is completed, the deck is removed and a permanent surface is laid.

**easement**, a legal term meaning a right to use or occupy a portion of another's land. Right is conferred by a legal agreement defining the area of land, the type of use, and the owner's compensation.

**face, tunnel face**, the front or working end of the excavation. "rock face", "mixed face", etc. describe the ground into which the tunnel is headed. See fig., "bored tunnel".

**floating slab**, describes a method of cushioning the train track to reduce the noise and vibration transmitted to the tunnel and to the outside. The track is not attached directly to the floor of the tunnel but to a concrete slab (1) which in turn rests upon resilient pads (2)



**grade**, (1) ground or street level; "at grade" means on the same level, or flush with, the ground, road or sidewalk. (2) slope or incline. (3) "to grade" is to smooth or level the ground surface, whether flat or sloping.

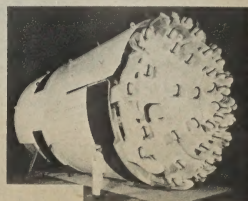
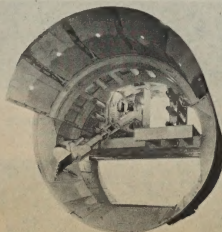
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## How will the tunnel be built?

Digging of the Harvard to Davis segment of the tunnel will begin in Porter Square. An access shaft will be dug on the east side of Massachusetts Ave., between the Commonwealth Lock building and the Boston and Maine commuter rail tracks. From there, tunneling will proceed north toward Davis and south toward Harvard.

It is anticipated that most of the work can be done by machine. There are two basic types of machines: one for tunneling in soft ground and one for tunneling through rock. The soft ground machine, called a tunneling shield or "mole", works rather like a large cookie-cutter. A ring is forced into the soft ground by hydraulic jacks and the loosened earth is excavated, usually by a mechanical arm, and deposited onto a conveyor belt for removal. A liner of steel or concrete is erected behind the shield.

The machine which drives a tunnel through rock is a massive piece of equipment with a large rotating head carrying discs of very hard steel. The machine is braced against the rock walls of the tunnel, while the steel discs cut into the rock. The rock fragments are removed, the tunnel is reinforced, if necessary, and then lined with concrete.



(Left) A soft ground tunneling shield. Note the mechanical arm for digging. (Right) A rotary rock borer. Note the dozens of cutting discs mounted on the face. (The machines illustrated are both made by the Robbins Company, Seattle, Wash.)

The rock or dirt will be hauled back to the access shaft in Porter Square and then out to a disposal site. The MBTA and the City of Cambridge are thinking about taking the excavated material to the Cambridge dump. It could easily be carted to the dump along the existing Fitchburg Branch rail line. If this were done, the City would acquire free fill for landscaping the site and converting it into a usable park and playing field area. The City looked into the possibility of reusing the former dump site in this way in 1972, but nothing was done, partly because fill was too expensive.

Coordinator for the Harvard to Davis segment of the tunnel is Bechtel, Inc., a national engineering firm whose local project office is in Davis Square.

The Davis to Alewife segment of the tunnel will be cut-and-cover construction through soft ground all the way. All but a short portion (about 2000') of this segment lies in what is now a B&M right-of-way. A cut-and-cover tunnel, unlike a bored tunnel, does not have to be dug continuously. It is possible to schedule construction so that critical areas are completed quickly and restored for use. For example, the section of the tunnel which cuts under Russell Field will be one of the first to be completed. The section under the Alewife Garage and the ramps to Rte. 2 will also be started early so that construction can begin above the tunnel.

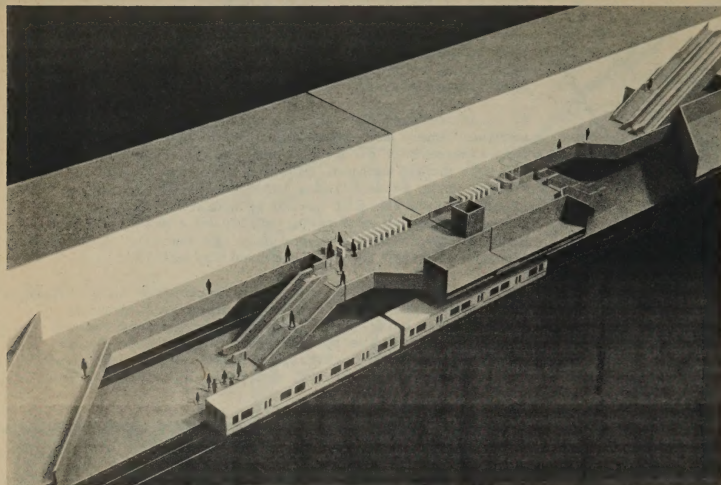
Where the tunnel crosses under Massachusetts Ave., near Cameron and Cedar Streets, temporary decking can be installed over the trench to carry the traffic. Alternatively, at this intersection it would be possible to avoid an open cut by freezing the ground or pumping it full of grout to make it hard, and then tunneling underground. Ground freezing and grouting techniques are considerably more expensive, however, than conventional cut-and-cover methods.

Alewife Brook will be diverted while the portion of the tunnel directly beneath is built. Afterwards, the riverbed will be restored and the river will return to its course. Plans for work within the Reservation will have to be reviewed by the Conservation Commissions of Cambridge and Arlington and by state and federal environmental agencies.

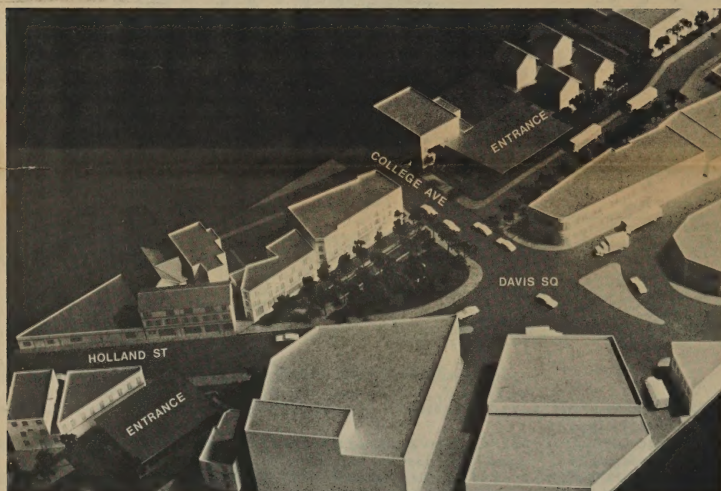
The engineers for the tunnel from Davis Square through Alewife station are Sverdrup and Parcel, Boston.



# Davis Square Station



Mezzanine and platform levels. (Photo of cutaway model)  
Holland St. entrance is on the right, College Ave. entrance on the left.



Davis Square after completion of the new station. At the center of the model, the skylight over the mezzanine can just be glimpsed through the trees.

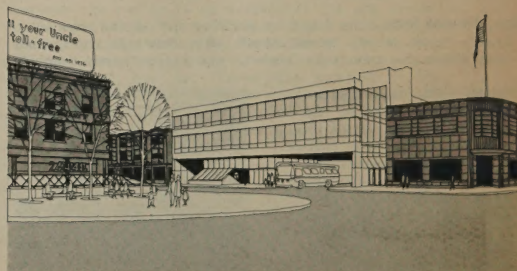
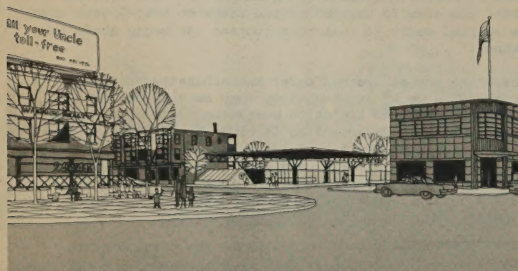
During the Schematic design stage, the original EIS scheme evolved into a simpler station, with the agreement of the Davis Square Task Force.

- A single mezzanine serving two entrances has replaced two separate mezzanines.
- The bus waiting area and the College Ave. subway entrance have been combined in one structure.
- The Highland Ave. store-front entrance with its pedestrian tunnel has been eliminated; the possibility of surface walkways from Highland to the College Ave. entrance is being studied.

Davis Square is a major intersection for both traffic and utilities. Care is being taken to keep disruption of traffic and utility service to a minimum. Decking will be installed over the excavation at College Ave. and at Holland St. so that those streets can remain in use during construction. The storm drain which lies in the right-of-way will be replaced with a larger one in anticipation of planned improvements to the Somerville sewer system.

The Davis Square Task Force is studying possibilities for development in Davis Square. In order to accommodate future air rights development, the foundation and structure of the station entrances will be designed to carry a building up to four stories high. Development of the area above the tunnels to the east and west of the station (along the old Boston and Maine right-of-way) is also being studied by the Task Force.

The architects for the station are Goody, Clancy and Associates, Boston.



College Ave. entrance. Sketch on the right shows how it might look with a building above (joint development).



# Alewife Station and Garage

Alewife Station/Garage will be located just west of Alewife Brook Parkway on a site now occupied by commercial and industrial buildings.

The transit station has been designed with two entrances, one on each side of Alewife Brook Parkway. The east entrance connects directly to the subway platform and through an underpass to buses and the garage; it is for pedestrians and bicycles only and would serve the North Cambridge neighborhood. The west entrance would be the "main" entrance serving travelers arriving by bus and automobile and pedestrians from areas west of the Parkway. All vehicles will enter the complex west of the Parkway. Eighty percent of the autos and buses using the facility are expected to be arriving from the west on Route 2; a new Massachusetts Department of Public Works (MDPW) roadway will allow these vehicles to enter the station/garage directly from the 8-lane section of Route 2 (fig. 1). The remaining autos and

buses will be arriving from the south via Alewife Brook Parkway and the Rindge Ave. extension.

Extensive study with the Alewife Task Force has led to a consensus on the station concept. Height has been limited to five stories. Two drum-shaped double ramps - one for entry, one for exit - have been designed for smooth an uncongested circulation to and from the garage (fig. 3). These ramps will be built south of the Alewife Brook Reservation to reduce their impact on the open space. A storm water retention pond will be located between the garage and the parkway to prevent runoff from the garage from contributing to flooding in the Alewife Brook area. Landscaping will create a visual buffer, screening the station/garage from the parkway and the North Cambridge neighborhood (fig. 2).

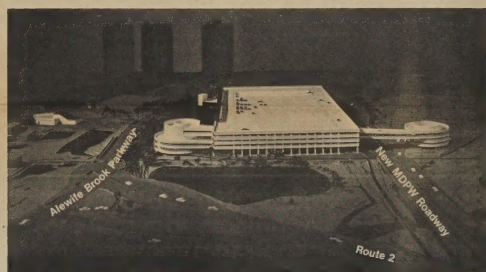
Architects for the station/garage complex are Wallace, Floyd, Ellenzweig, Moore, Inc.



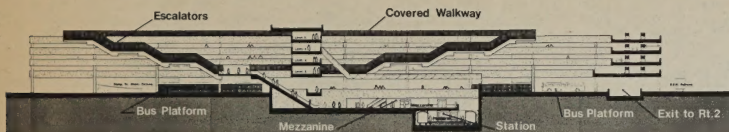
Approach to garage from Rte. 2 via new MDPW roadway.



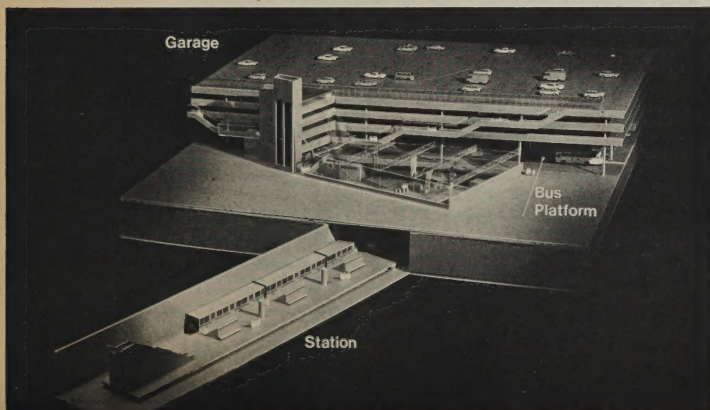
View of model from east of the Parkway.



View of model from north of Rte. 2.



Parkway side of the garage. Section has been cut through station



Model; same view as (4), cut away to reveal station under the Parkway. Mezzanine is at center. (Only a portion of the garage is shown.)

The ground floor will be the main pedestrian level. Ground floor facilities will include the bus platform, taxi area, short-term parking, secure bicycle storage and, possibly, retail space. The bus platform has been designed to accommodate 14 buses at one time, in anticipation of future needs. The mezzanine level will be below ground and will be connected by elevator, escalator and stairway with the subway platform and with the ground floor and long-term parking levels (fig. 4,5). All levels will be accessible to physically handicapped persons.

The MBTA is closely coordinating its design with other studies and plans for the area. These include:

- MDPW proposals for traffic improvements to Rte. 2 and Alewife Brook Parkway;
- City of Cambridge sponsored studies of future land use and traffic issues affecting the North Cambridge neighborhood and nearby land owners;
- MDC plans for the parkway area.

Photos, fig. 2, 3, 5, by Steve Rosenthal



What happens next?  
continued from p.1

After approval of the Final EIS, UMTA can make a capital grant to the MBTA and final design of the project can begin. It is currently anticipated that the grant for final design will be received during the summer months.

**Right-of-way acquisition.** During the first months after the grant is awarded, the MBTA will be contacting people who own property along the right-of-way in order to obtain easements. A permanent easement will permit the MBTA to build a portion of the tunnel or of a station under the property; property takings or easements will be necessary where ventilation shafts and emergency exits fall on private property. Temporary easements may be required during construction to give the crews room to work.

## When will construction begin?

In making up the schedule on page 1, the MBTA has assumed that the grant will be awarded this summer. If that happens, construction of the tunnel can be expected to begin in February or March of next year.

**Preliminaries.** Before that time, however, there would be other visible activity. Geologists will be on the scene getting more information about soil and ground water conditions. They will be making additional borings or test holes, particularly around Harvard and Porter Squares. The construction contract for the temporary station at Elliot Yard will go out for bid shortly after the grant is awarded and construction could begin three months later, in the early fall. The Red Line will displace railroad traffic from the B&M Freight Cut-off between Davis Square and the B&M Bedford Branch. This traffic will be rerouted to the New Hampshire Branch which

will be modified by the MBTA so that it can carry the larger cars. Work on the New Hampshire Branch will also begin soon after the grant is awarded.

In preparation for the actual construction, there may be some demolition along the right-of-way (very little, actually, since the tunnel runs mainly under public or MBTA owned land) and some digging up of streets in order to move utility lines which are in the way of construction. A short, temporary bypass will be built alongside Alewife Brook Parkway to carry traffic while a section of the station is constructed under the original road.

## Why is the Red Line being built?

With all the attention now being placed on the details of engineering and design, the basic purpose of this project is sometimes overlooked. Its purpose has been discussed at length in the Boston Transportation Planning Review (BTPR) Red Book and in the Draft EIS:

"Accessibility to the central business district will increase, particularly for the transit dependent. The elderly and handicapped will have improved mobility.

"This project would present an alternative to the automobile, which is compatible with the state-wide commitment to reduce auto-dependency. Transit usage will result in reduced travel time, reduced local traffic congestion, a more energy-efficient system, and cleaner air."

Source: Draft EIS  
Summary Sheet

As time passes, the need increases: to reduce demands on the nation's energy resources, protect the environment, improve access to jobs and meet the needs of the transit dependent population. These remain the reasons for building the Red Line.

## Joint planning

The Red Line is being built by the MBTA. Land use in the vicinity of the stations is controlled by the municipalities through zoning, traffic and parking regulations and the like. Recognizing this, the MBTA provides federal funds to support local planning coordinated by the Metropolitan Area Planning Council (MAPC), by the Cambridge Community Development Department, and by the City of Somerville. Some of these efforts are described in the station pages.

A major planning effort for the Alewife Station area is being sponsored by the City

of Cambridge, working closely with the Alewife Task Force. The first part was the Alewife Urban Design Study which visualized ways in which the area might develop with and without zoning and business controls. Next, the City will be meeting with neighborhood groups to find out which alternatives they wish to pursue. Traffic and market studies are also in progress.

In Davis Square, the MAPC and the City of Somerville are sponsoring a study of urban design and business prospects. Here the community wishes to take advantage of the new station to revitalize the area.

What do they mean when they say...?  
continued from p.5

**hard ground, rock, ledge**

**profile,** another engineering term meaning a vertical section, it shows the depth of the tunnel along the route. The depth scale is usually exaggerated, for clarity.

**right-of-way, R.O.W.,** in general, the strip of land over or under which a road, railroad, transit line or utility line passes.

**soft ground, clay, sand or soil**

**till, "hardpan";** a glacial deposit of clay, sand and pebbles. In the area of the right-of-way there is a layer of till between bedrock and soft ground.

**vent shaft,** an opening from the tunnel to the surface for ventilation. Normally, it is used to take in fresh air and exhaust the stale; in case of a fire, it would be used to exhaust smoke from the tunnel. The MBTA requires vent shafts to be no more than 2200 feet apart, so they will be built at intervals along the tunnel as well as at the ends of each station. Emergency exit stairs are commonly built next to the vent shafts in order to cut down the number of holes which have to be dug and reduce costs and surface disturbance.



Typical sidewalk grill for vent shaft.

Photo: Michael McInnis

## T Red Line News

### for more information...

MBTA  
John Leary 722-6303  
Charles Steward 722-6289

City of Cambridge  
Chris Dame, Community  
Development Department  
876-6500, ext.355

City of Somerville  
Sam Reece, Davis Sq. Planner  
625-3813  
or 625-6600, ext.210





# Red Line News

Number 5 October 1978

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## Red Line Construction Underway



Harvard-Brattle Temporary Station



Porter Square Temporary Commuter Rail Station

As of January first of this year, construction started on the preparatory contracts for the MBTA's extension of the Red Line Northwest. In the next twelve months, approximately \$400 million of construction will be advertised including four major new stations at Harvard Square, Porter Square, Davis Square and Alewife.

In order to handle commuters and transit patrons during the construction period, temporary station facilities are being built in Harvard and Porter Squares. After the spring of next year, the 24,000 daily passengers that now board the Red Line at the existing Harvard Station, can catch the subway at the Eliot Yard. By mid-1980, another temporary station entrance will be opened at Harvard/Holyoke. Later this fall, commuter rail patrons who currently use the Porter Square Station on the MBTA's South Acton Line will be provided a new waiting area convenient from Somerville Avenue.

When completed in 1982, the Harvard to Alewife extension will add 3.2 miles of new track to the MBTA system. Because the construction will be underground for its entire length, subway operations will be quiet through the neighborhoods of Cambridge and Somerville, and our New England weather will not adversely affect how the trains run. The tunneling work for these new tracks

will begin this fall. Between Harvard and Davis Square, twin deep bore tunnels as far as 120 feet below the ground surface will be constructed largely in the bedrock. Beyond Davis Square the tunnels will, for the most part, follow the existing railroad right-of-way (the freight Cut-off) to Alewife. Here, a cut-and-cover tunneling technique which involves digging a trench, constructing the subway, and backfilling over the top with earth will be followed.

This issue of the Red Line News provides information about these tunneling activities as well as the construction work at each station. We will provide an overview of the project and its current scheduling, specific descriptions of early contracts which are underway, as well as the major activities to start this fall. If you have any questions which are not answered by the Red Line News, you may contact the construction information officer by dialing MBTA-RED (628-2733).

### Community Assistance Program Established

As construction on the Red Line begins, the most comprehensive community planning effort of any major construction project ever undertaken in Massachusetts will become a reality. In any ambitious public works undertaking, disruption to the community during construction is inevitable. The MBTA, the consultants, and the neighborhood Task Forces have spent years planning and designing these facilities to maximize future transit access and convenience while attempting to minimize the adverse effects of construction. The MBTA, in cooperation with the Cities of Cambridge and Somerville, has established a Community Assistance Program to provide information, advice, and assistance to community groups or individuals affected by the construction activities.

The MBTA's commitment to reaching the broadest possible audience intensified with the installation of 24-hour telephone service. By dialing MBTA-RED (628-2733), you can call the MBTA Development office to ask questions about Red Line construction. This phone will be answered from 8:30 to 4:30 during the day (night-time calls will be tape-recorded) and development staff will respond with an answer as soon as possible.

The second action by the MBTA has been the establishment of the Development Office with full time community assistance staff at 58 Day Street, Somerville. Mr. John K. Leary, from the MBTA's Development Department, will head up the office which will respond to issues of community concern, prepare and distribute a series of newsletters which focus on issues in depth. A mailing list of businesses and residences along the Red Line route has been prepared and the newsletters will be sent on a monthly basis.

People and businesses in close proximity to construction sites have special concerns. Community Development staff will personally contact property owners and tenants at selected locations along the proposed route to discuss these concerns, to answer questions, and to find practical ways of minimizing the impacts of construction.

The staff of the Development Office will provide access to information resources within the MBTA, the consultant group, and the City. They will meet regularly to review problems and progress and to discuss issues which are of concern to individuals or to the community. When the issues are broad in nature, the neighborhood association or task force will be involved.

# What Will Happen First?

## Harvard Square

Harvard Square has been the scene of some of the earliest construction contracts. Last winter, construction of the Harvard-Brattle Temporary Station began. Although scheduled for completion this fall, the station will not open until the Spring of 1979. When the threat of snow has passed, the present Harvard Station will close to permit its permanent reconstruction to take place and Harvard/Brattle will be put into operation. In the meantime, utility lines within the Square are being relocated so that the sta-

tion work can proceed without interference to gas, water, or electric service. In the Holyoke Center area, utilities are being moved away from the future Harvard/Holyoke Temporary Station which will begin construction late this winter.

The Harvard/Holyoke Station, like its counterpart at Brattle will serve MBTA patrons during the construction period. Two new entrances will be built at points along Mass. Avenue to serve existing inbound and outbound platforms to be constructed as the permanent construction progresses.



New Entrance at Harvard-Brattle Under Construction

## Davis Square

Utilities are also being relocated in Davis Square. Work crews from the telephone company are presently shifting lines at the intersection of Holland Street and College Avenue. Other relocations will follow. Towards the end of this year, demolition work on

buildings located in the future station site will commence. Preparation of the railroad tracks east of the future station will also be undertaken for the hauling of materials to the dump from the Porter to Davis deep bore tunnels. Most of this preparation work will be accomplished before the new year.



Relocating Utility Lines in Davis Square

## Porter Square

At the present time, several activities are underway in Porter Square. A temporary commuter rail station is being built at Somerville Avenue, the railroad tracks are being lowered to accommodate the potential for future electrification of commuter service, and a 48" MDC water main is to be relocated this fall. This water main will be installed by pushing the pipe underground to minimize street and surface disruption. The permanent rapid transit/commuter rail station will be constructed starting in the Summer, 1979.

In order to allow first hand observation of the bedrock conditions in the deep station, a pilot shaft is being dug at the end of White Street. Once the shaft reaches the top of the station arch, a pilot tunnel will be constructed along the full length of the station chamber. White Street has been closed to through traffic, but will open temporarily following completion of this pilot program. When construction on the station begins in earnest, the shaft will be the focal point of all the underground station construction operations.



Excavating the Pilot Shaft at White Street

## Alewife

Red Line related construction activity in the Alewife area does not start until the Spring of next year. At that time, several activities will be getting underway. Alewife Brook Parkway will be detoured to the east of its present location to allow station construction. To carry the traffic, a temporary bridge over the Fitchburg Freight Cut-off will be built to replace the existing structure. This bridge will bring an added benefit of permitting truck traffic removal from Rindge Avenue. In order to begin

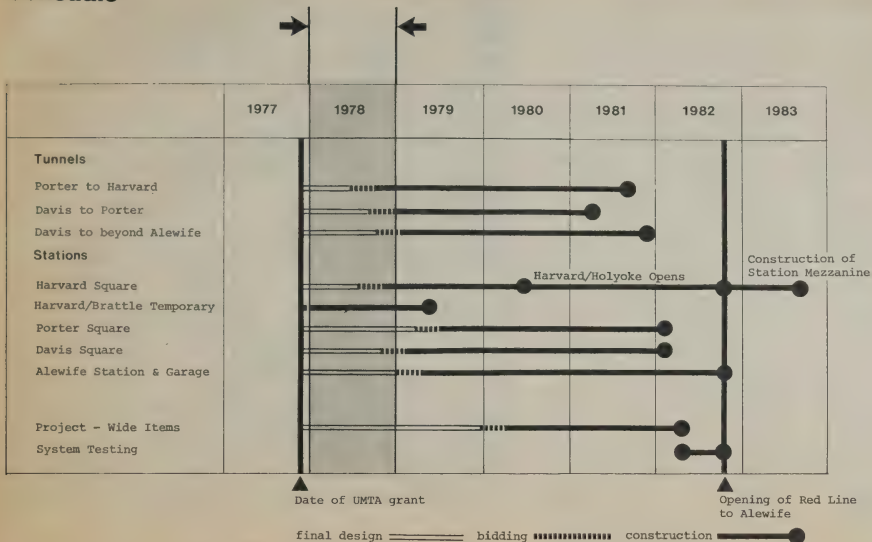
work at the station and garage site, building demolition will be carried out.

While all this is going on, a surface haulroad will be constructed along the railroad right-of-way with connections to Route 2. Excavated materials coming from the Davis Square to Alewife Tunnel and Alewife Station/Garage complex not used for construction will travel by way of the haul road and Route 2 to a remote dumping location. Once the haulroad is completed, work can begin on tunnel construction.



# Station and Tunnel Construction

## Schedule



## Major Construction Contracts — A Primer

Once the preparatory work of the early contracts has been completed, the major construction contracts can begin. The four new stations, which are linked by three tunnel segments, represent a wide range of methods in urban transit construction. From the extensive reconstruction of Harvard Station which will take place just below the pavement to the mining of a station chamber for Porter Square station 120 feet underground, the design work reflects the unique qualities of each station. So too will the methods, sequence and timing required to build each piece of this extension. So that you can understand what you will see happening at the various construction sites and appreciate the different construction methods, descriptions of the major contracts follow.

### Harvard Square

The new Harvard Square Station will consist of a large mezzanine area which will link renovated bus tunnels with the new train platforms. This central, two-story space will be easily reached by stairs, escalators and an elevator located in the new plaza in Harvard Square. Once you arrive, you'll simply turn to your right for the train or to your left for the buses. To achieve such a simplified circulation pattern for the new station, two new loading platforms will have to be constructed under Mass. Avenue. These will extend from the newsstand to Flagstaff Park. A secondary mezzanine will be located approximately where Church Street intersects the Avenue. Stairs and an escalator will connect the mezzanine with entrances at Church Street and Harvard Yard. The existing bus loading area will be renovated and a new surface entrance will be constructed at Brattle Square with direct connections to the upper bus platform.

Virtually all of the new construction will occur beneath Mass. Avenue. In order to minimize ground movement and protect buildings directly adjacent to new station walls, a slurry wall technique will be used. This technique has been chosen because it eliminates the need for underpinning or pile driving. It is by far the quietest and least disruptive of the heavy construction techniques being



### Construction Stages:

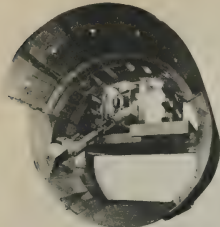
- 1 Construct Harvard-Brattle temporary station.
- 2 Construct Harvard-Holyoke temporary station; begin tunnel construction.
- 3 Construct new platforms and new bus tunnels.
- 4 Construct new mezzanine and rehabilitate existing bus tunnels.
- 5 Open new station for service; shut down line to Harvard-Brattle
- 6 Complete mezzanine and entrances.

used today. Walls will be constructed by digging a narrow, 3' trench from the surface to a depth of 35-45 feet. A slurry mixture is introduced into the trench as it is dug to prevent cave-ins. Once down to the desired depth, concrete is pumped into the bottom of the trench, displacing the slurry and creating a solid structural wall. The new permanent station roof structures will be constructed in phases so that current traffic movements through the Square can be maintained.

# Station and Tunnel Construction

## Harvard to Porter Tunnels

From the end of the new Harvard Station near Flagstaff Park, the deep bore tunnels to Porter Square will dive through the soft ground to enter the bedrock as quickly as possible. Through this length the tunnels will run under Mass. Avenue and drop to over 120 feet in depth where they enter the Porter Square Station. To construct this segment of tunnel, the contractor will excavate shafts at the south end of the Porter Station, Garfield Street, Jarvis Street and the north end of Flagstaff Park. Once down to tunnel depth, twin rock tunnels will be driven most likely using a conventional drilling and blasting construction technique. The intensity of the blast is carefully controlled by sequencing a number of small charges rather than a large one. It is likely that given the amount of bedrock above the tunnels and the distance to the surface, at any point along the tunnels only slight vibrations would be noticed at the surface three to four times a day for a period of about a month as each tunnel is driven. Three or four charges per day are anticipated for each tunnel. Once the tunnels reach the soft ground, a soft-ground shield (mole) will be used to tunnel into or from Flagstaff Park.



Soft Ground Tunneling Shield

Emergency egress and ventilation for the tunnels will be constructed in the two access shafts located between Harvard and Porter Squares. Exit stairs are commonly built with the ventilation shafts to reduce the number of holes which have to be dug and minimize disturbance at the surface.

Once excavated, the rock and soft-ground tunnels and the ventilation structures will be lined with cast-in-place concrete. Trackwork, ventilation and fire protection equipment, electrical equipment, and noise and vibration control will be installed to ready the tunnels for train testing and operation.

## Porter Square

The Porter Square Station consists of two major elements—a station entrance and mezzanine system beneath Massachusetts and Somerville Avenues and a deep station 120 feet below street level. As a result two construction techniques will be used. The mezzanine will be constructed by a cut-and-cover operation. Three phases are planned in order to minimize disruption to traffic and maximize the contractor's available working area. Temporary decking will be placed over the entire area so that the mezzanine excavation work can proceed without disturbing surface activities.

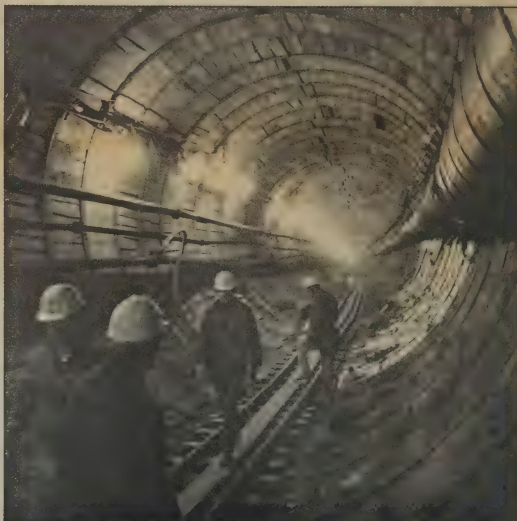
While work is proceeding on the mezzanine, the vaulted chamber for the station platforms will begin to take shape by drilling and blasting techniques. So called rock bolts are installed along the line of the previously constructed pilot tunnel to ensure the structural integrity of the cavern. As the excavation advances, the rock is drilled, filled with explosives and detonated. The rubble which is left is hauled to the surface, transferred to rail cars and taken to the Cambridge Dump. Steel ribs and a sprayed concrete coating form the final structure inside the chamber.

## Porter to Davis Tunnels

From Porter Square Station, the deep bore tunnels will remain in bedrock to a point near Grove Street in Davis Square. The tunneling technique will be hard rock mining probably using the drill-and-shoot method described for the Harvard to Porter tunnels. Access to the work will be provided by a shaft to be constructed at Grove Street. The direction of tunneling will be from this shaft towards Porter Square. As excavated materials are taken from the shaft, they will be loaded directly into side dump railroad cars and shipped by rail to the Cambridge City Dump through the Boston Yards. A second shaft will be sunk at a location on Summer Street to provide emergency egress and ventilation for the tunnels.

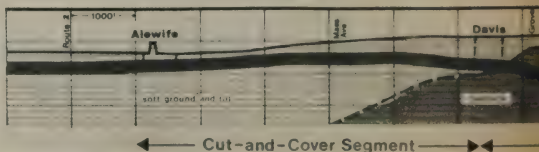


Construction Zone at Porter Square



Interior View of Tunnel Under Construction

**Profile.** The tunnel enters bedrock about midway to Porter Square and leaves it just east of Davis, near Grove Street. The cut-and-cover segment begins at Davis Square Station. At Harvard and Porter the track is on two levels. (The vertical scale is exaggerated ten times; actual inclines never exceed 4% or 1 ft. rise in 25 ft. length.)



Underground Profile of Harvard to Alewife Tunnels



## Davis Square

As the tunnels from Porter Square approach the Davis Square Station they will climb at a maximum grade toward the surface. The station, since it is relatively shallow, will be constructed by the cut-and-cover method. An excavation support wall will be constructed around the entire station box by means of a slurry wall (described for the Harvard Square construction). Once this wall is installed, the station excavation will begin. As the excavation work proceeds across College Avenue and Holland Street, the streets will be decked to provide for two lanes of traffic. During most of the 10 to 12 month excavation period, traffic through the Square should not be adversely affected by these activities. The material taken out of the station will be loaded into the same railcars used to transport tunnel materials from the Grove Street shaft, thus eliminating the need to truck it over city streets. When the underground station structure is complete, the area will be backfilled, the decking removed, the surface restored, and the landscaping begun.



Parallel Slurry Walls for Cut-and-Cover Tunnels

## Davis to Alewife Tunnels

The Davis to Alewife segment of the tunnel, which is relatively shallow, will be cut-and-cover construction through soft ground all the way. All but a short portion (about 2000' west of Harvey Street) of this segment lies in what is now a railroad right-of-way. With a cut-and-cover tunnel, unlike a bored tunnel, the work does not have to be dug as a continuous operation. It will be possible to schedule construction so that critical areas are completed quickly and restored for use. For example, the section of the tunnel which lies under Russell Field will be one of the first to be completed. The section under the Alewife Garage will also be started early so that construction can begin above the tunnel.

The construction process for cut-and-cover construction goes like this: (1) parallel retaining walls are built; (2) the earth between the two walls is excavated; (3) the tunnel is built within the "cut" (if the retaining walls are of concrete, they may become the walls of the tunnel); and

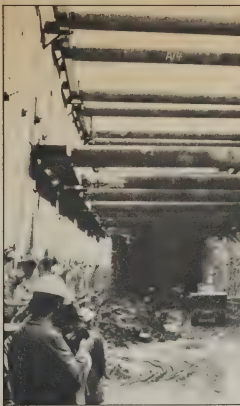


Placing Concrete for Slurry Walls

(4) the space above the roof of the tunnel is "back-filled," that is, filled with earth up to the original ground level and the surface is restored.

The trench may be covered, that is "decked over," while construction is going on, permitting street activity to continue with only short interruptions for digging and restoring the surface. Where the tunnel crosses under Massachusetts Ave., near Cameron and Cedar Streets, temporary decking will be installed over the excavation to carry the traffic.

The construction in the Alewife Reservation is being carefully planned. Alewife Brook will be diverted while the portion of the tunnel directly beneath it is built. Afterwards, the riverbed will be restored and the river will return to its present course. Plans for work within the Reservation are being coordinated with and have been reviewed by the Conservation Commissions of Cambridge and Arlington and by state and federal environmental agencies.



Horizontal Braces Support Walls of Excavated Trench

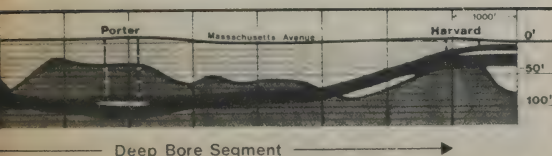
## Alewife

The final design of the Alewife Station complex is underway. Future site landscaping will connect with an extensive future open space network extending into Arlington and Cambridge. Because of sensitive environmental conditions, great care has been taken in the site design to control stormwater runoff. Flood control design is based on a recent MDC hydrology study of the Alewife Brook Watershed sponsored in part by the MBTA.

Preparatory site work has already begun on the station/garage complex. From May through July this year, two test slurry walls were constructed using the same method as for the Davis to Alewife tunnel. Their purpose was to gather information on soil conditions for use in designing the tunnel.

Several existing businesses on the site, generally between Alewife Brook Parkway and Bethlehem Steel and north of Rindge Avenue Extension, are being relocated and their properties acquired. Demolition work may begin late this year to prevent buildings from standing empty. Demolition will be completed by late Spring 1979.

Early next year major construction contracts will go out to bid. Construction of the tunnel segments near Russell Field, the haul road and a detour around the Alewife Parkway bridge just south of Dewey-Almy circle is planned to begin in March 1979. At that time, the first of two contracts for the Alewife Station Complex will be put out to bid and construction of the station should begin in June.

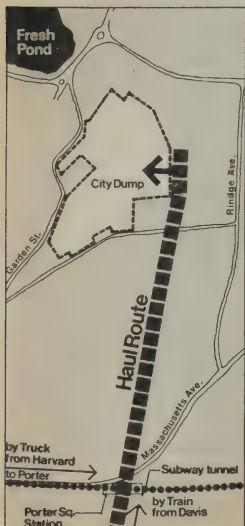


Aerial View of Alewife Station and Garage

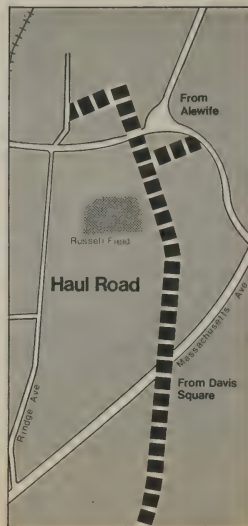


# Construction and the Community

## Where Does the Excavated Material Go?



Haul Route to Cambridge Dump



Davis to Alewife Haul Road

Construction of the Red Line Extension will create large amounts of excavated materials from both stations and tunnels. By a happy coincidence, the former Cambridge City Dump requires a substantial amount of fill to permit the city to turn it into a much needed recreational facility. As part of the Red Line construction, the City and MBTA have signed a joint agreement for the development of the dump for recreation.

Fortunately, the dump is centrally located to the construction sites and is accessible from the project by existing railroad lines, thus minimizing the need to use city streets for hauling. In order to transport the excavated materials from the Harvard to Davis segment of the project, a haultrack for railroad cars will be constructed between Porter Square and the Dump adjacent to the relocated MBTA Commuter Railroad tracks.

Material excavated from Harvard Square Station and from two tunnel ventilation shafts along Mass. Ave. will be brought by truck to Porter Square and loaded on the railroad cars. The tunnels from Porter to Davis Square will be excavated from a shaft site at Grove Street and placed on railroad cars to be routed into Boston and back to the dump. All materials, up to the capacity of the dump, will be brought to the dump. Dust and noise

control measures for excavated materials will be enforced for all hauling and dumping activity. The new fill will help make the City of Cambridge's long-sought-after 50-acre recreational facility a reality.

A second haul facility will be developed to handle materials excavated from the tunnel construction between Davis Square and Alewife. A surfaced haul road, constructed along the Boston and Maine Freight Cutoff, will provide a truck route for these materials. Some excavated materials will be taken via the haulroad to Russell Field. Later, they will return via the haulroad to be used as backfill over the tops of the tunnels.

A connector road to Alewife Brook Parkway and a new temporary bridge carrying the Parkway over the railroad will be constructed. Excess excavated material that cannot be used as backfill will go down the haulroad and out Route 2 by truck, to a contractor's disposal site. When backfilling over the tunnels is completed, the right-of-way west of Davis Square to Russell Field will be landscaped as a linear park.

## Guarding the Community Interest — Who Watches?

Two issues are of concern here: the affect of construction on the general environment and the impact to individual property. One question which has been raised by the community is, "How can we be assured that the contract provisions regarding such issues as noise and dust pollution are enforced?"

Each contractor must comply with all applicable federal, state and local ordinances regarding environmental quality. For instance, the City of Cambridge has enacted a noise ordinance which controls both level and duration of allowable construction noise. State law provides other regulations such as the requirement to cover loaded dump trucks with tarpaulins or other dust covers. State and Federal laws limit the sizes of truck used. In addition to these existing laws, each contract contains written provisions and specifications which state the environmental requirements to which the contractor must conform in conducting his work. The MBTA will provide personnel for direct field

supervision of the contractor's activities and conformance with these requirements.

A second question is, "Will my property be damaged by the construction activity?" To determine the effects of construction on nearby properties, the MBTA will undertake a full construction monitoring program. Buildings within the construction influence area will be surveyed before construction begins. This will involve a visual survey of the property by the owner, the MBTA and the Contractor, as well as photographic and field documentation. During construction, an instrumentation and monitoring program will detect and record any ground settlement in soft ground areas. Excessive ground movement, which could potentially damage structures, will be prevented by the use of underpinning, grouting, or other building protection techniques. At completion of the work, the buildings will be re-surveyed with the owners to establish whether construction has affected the properties.

Loading Dump Trucks on the Railroad Right-of-Way





## Your Square Will Have a New Look

New plazas and landscaping will be developed at Harvard, Porter and Davis Squares and all streets and sidewalks affected by the MBTA's construction will be restored.

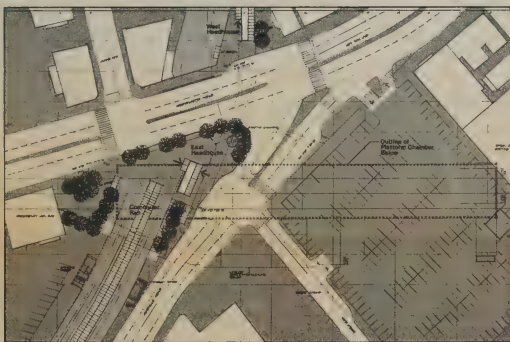
At Harvard Square, many changes will take place. The Square's traditional hustle and bustle will remain, but physical improvements will alleviate congestion and make Harvard Square a more pleasant place to be. Mass. Ave. and Brattle Street will be reconstructed with widened sidewalks providing more pedestrian space and new station entrances at Harvard Yard, Church Street and Brattle Square. A new Harvard Square plaza located in front of the Cambridge Savings Bank and the street across from the Coop will be developed. The main subway entrance, the old entrance kiosk converted to a newsstand, and an elevator entrance for the handicapped will be located on the plaza. Landscaping will include brick sidewalk paving, bollards, trees, lighting, benches and trash receptacles.

At Porter Square, the architect's design for the main station entrance at the intersection of Mass. Avenue and Somerville Avenue will include an attractive, generous landscaped plaza at street level. The plaza will contain bus shelters, benches, lighting, and signs. A secondary entrance west of Mass. Avenue will provide bus access to the subway via an underground passage beneath Mass. Ave. connecting directly to the station mezzanine. Sidewalks in front of Porter Square Shopping Center will be widened and landscaped.

In accordance with plans developed by the Neighborhood Task Force, the heart of Davis Square will be transformed from a railroad crossing, signal tower, and parking lot to a handsome landscaped pedestrian area. This area will become a new plaza extending between Holland Street and College Avenue with brick paving, ample trees, and benches and tables for sitting. In addition, the areas to the west of Holland Street, where the railroad tracks are, will contain a landscaped municipal parking area. The railroad right-of-way between College Avenue and Grove Street will be an exclusive busway lined with trees. Buses which lay over in the Square today will be moved to this new busway.



Surface Level Plan for Brattle Square, Harvard Square and Flagstaff Park



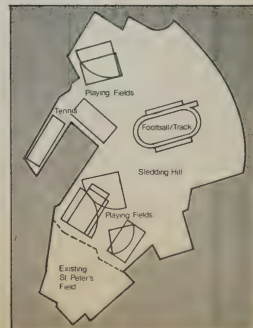
Landscape Plan at Main Entrance of Porter Square Station



New Urban Park in Heart of Davis Square

## Neighborhood Parks and Recreation Facilities

With the building of the Red Line, neighborhoods in Cambridge and Somerville can seize a rare opportunity to recycle some undesirable land uses into parks, recreation and open space. The City of Cambridge and the MBTA plan to cooperatively redevelop the dump into a recreational complex and the railroad right-of-way (the freight cut-off) into a linear park. In addition, Russell Field will be returned to use as open space.



Proposed Re-Use Plan for Cambridge City Dump

The City of Cambridge has been studying possible redevelopment of the dump area since 1973. The favored plan was for reuse of the dump for recreation and open space. Facilities for football, soccer, track, and baseball were proposed. The studies called for placing fill over the former dump area to compact the area and shape the desired contours. Topsoil would then be placed for general landscaping and seeding of playing fields and sledding slopes. The latest plan was prepared for the City by Carol R. Johnson & Associates, Inc., in April of this year. The accompanying map illustrates the basic concept for facility type and locations.

The railroad right-of-way will become a linear park after the cut-and-cover tunnels are finished. Plans for the linear park will extend an open space network from Cambridge into Somerville. Additional improvements to recreation/open space uses will result from the MBTA's use of Russell Field as a staging area. When completed, the field will be returned to use as community open space.

## How Do I Use the T During Construction?

All bus and transit service in the project area will be maintained at present levels during the construction period. Changes in bus stop locations or bus/transit transfer points will occur, but the routes and connections will remain essentially the same.

### In Harvard Square

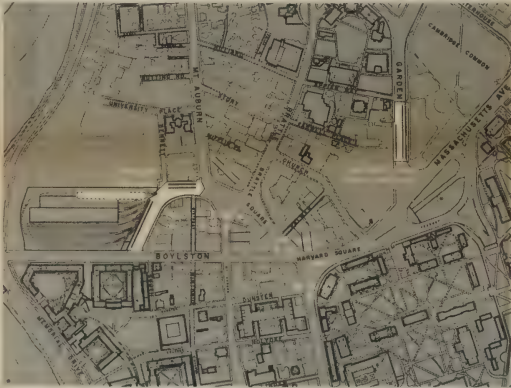
For subway riders, temporary Harvard Stations will be at Brattle and Holyoke as noted on the accompanying maps. Buses which now stop in Harvard Square (street level or below ground) will stop instead at one of three locations shown on the map:

- o in the vicinity of Dunster Street and Mass. Ave.
- o in front of the Harvard/Brattle Temporary Station
- o on Garden Street, beside the Cambridge Common.

Two major bus stops outside the Square are also marked. Passengers arriving by bus at Eliot Street will be able to transfer directly to the Red Line at the Harvard/Brattle Station; patrons alighting at Garden Street and headed for the T will walk to Harvard/Holyoke Temporary Station.

### In Porter Square

Commuter rail patrons arriving or departing the Porter Square Station currently use the entrance on Mass. Ave. near the Flag Shop. Starting this fall, a new station entrance will be provided from Somerville Avenue. Just look for the lighted T symbol. Bus connections to Harvard Square, Fresh Pond and Central Square will run as usual.



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## Task Force Organized

The City of Cambridge has established a Task Force on Red Line Construction. Mr. James Sullivan, City Manager, meets regularly with City Department heads, key staff, and representatives from community groups to monitor construction progress on the Red Line and to insure that all areas of city government, as well as the public, are fully aware of upcoming events. It is hoped that through this forum, effective planning and coordination among various operating departments can be achieved and that disruptions to normal city services as well as community concerns are held to an absolute minimum. MBTA representatives have been present to review construction status as well as answer questions which relate to Red Line construction work. The meetings are open to the public and part of the agenda is set aside for questions and concerns from the floor. People wanting more information on the City Manager's Task Force are urged to call Richard Fahlander at 876-6800, ext. 344.

The MBTA, in addition to the Community Assistance Program and Red Line Construction Task Force, will continue to work with established neighborhood groups and local officials.

### **Cambridge, all stations**

Cambridge Chamber of Commerce  
Cambridge Conservation Commission  
Cambridge Historical Commission  
Cambridge League of Women Voters  
Cambridge Planning Board  
Cambridge Transportation Forum

### **Harvard Square**

Harvard Square Development Task Force  
Harvard Square Businessmen's Association  
Harvard University  
Mid-Cambridge Neighborhood Association  
Neighborhood Nine Association  
Neighborhood Ten Association  
Planning for People/Harvard Square  
C.O.P.E.

### **Porter Square**

Agassiz Neighborhood Planning Group  
Neighborhood Nine Association  
North Cambridge Planning Team  
Porter Square Merchants' Association

### **Davis Square Task Force**

Davis Square Businessmen's Association  
Metropolitan Area Planning Council  
Somerville Chamber of Commerce  
Ward Six Civic Association

### **Alewife Task Force**

Agassiz Neighborhood Planning Group  
Alewife Businessmen's Association  
Arlington Chamber of Commerce  
Fresh Pond Neighborhood Association  
Metropolitan Area Planning Council  
Mystic River Watershed Association  
Neighborhood Nine Association  
Neighborhood Ten Association  
North Cambridge Planning Team

## Why the Red Line?

The Red Line rapid transit subway has served Boston bound passengers from its Harvard Square terminus since its opening in 1912. Since then, the population of Boston's northwest area has increased substantially. Between 1960 and 1970 alone, the area's population increased by some 55,000. With this growth came dramatic changes in the types and distribution of urban land uses. Changes in the number of households, jobs, shopping and recreational opportunities have created a need for improved transportation in the communities to the north and west of Boston. Extension of the Red Line to serve these communities has been a topic of discussion for nearly 40 years. At the same time, highway construction has also been studied. During the late 60's, major expressways were planned through Cambridge and Somerville including the extension of Route 2 to I-93 and the so-called Inner Belt. However, these roadways were questioned because of their impacts on the existing neighborhoods, the environment, and the vitality of the public transit system. In 1970, a moratorium was placed on the highway building program inside Route 128 so that both highway and rapid transit alternatives could be studied. Both short and long term impacts were examined. Because of the high amount of displacement of homes and businesses, the expressway plan was dropped in favor of expanded mass transit.

What then are the benefits of building the Red Line? The project will provide greater regional accessibility, particularly to individuals who are transit dependent. The elderly and handicapped will have improved mobility through provision of conveniently located, barrier free neighborhood transit stations. The extension, which provides an alternative to the automobile, is compatible with the regional and state-wide commitment to reduce auto-dependency. In the face of higher and higher operating costs for autos in terms of insurance premiums and ever increasing gas and oil prices, transit usage will result in greater conservation of scarce resources. Reductions in travel time, local traffic congestion, and air pollution will result in a more convenient and energy efficient transportation system for Boston's Northwest Corridor.





# RED LINE NEWS

Number 7 May 1979



A joyous moment - Representatives of the federal, state and city governments joined officials of the MBTA to dedicate the Red Line's new Harvard/Brattle Station. Cutting the ribbon were, left to right, Francis M. Keville, Regional Project Manager - North; Robert L. Foster, Chairman and Chief Executive Officer of the MBTA; Walter Sullivan, Cambridge City Councilor; Barry M. Locke, Secretary of Transportation for the Commonwealth of Massachusetts; Theodore C. Landmark, Member of the MBTA Board of Directors; the Rev. Edwin Lane, Minister of the First Parish Church in Cambridge; and Warren T. Higgins, then Director of Construction for the MBTA.

## Harvard/Brattle Station Opens

Representatives of the federal, state and city governments joined MBTA personnel March 23 for a ribbon-cutting ceremony to mark the opening of the Red Line's Harvard/Brattle Station in Harvard Square the following day.

Located on Eliot Street near the Kennedy School of Government, the new station is the terminus for most of the Square's bus and trackless trolley passengers, and Harvard Square's second subway station.

Arriving on the first train were Robert L. Foster, MBTA Chairman and Chief Executive Officer, and Transportation Secretary Barry M. Locke. Mr. Foster welcomed several hundred guests, including representatives of the Urban Mass Transportation Administration, which is funding 80 percent of the \$541 million cost of the Red Line Extension from Harvard Square to Alewife Brook Parkway.

Mr. Foster said the cooperation needed in an undertaking of this size "is awesome and it is heartening to see the coming together here today of those who use the system—business and community leaders, (Harvard) university officials, and local, state and federal representatives.

"With this type of unified support, I am confident that

we will be successful in tackling the complexities of this mammoth construction project which lies before us," Chairman Foster said.

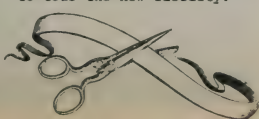
Main speaker, Barry M. Locke, Secretary of Transportation and Construction, said the Red Line Extension in the Northwest Corridor will effectively respond to the needs of the people as social and economic changes take place in today's society.

The Red Line extension, he said, will provide an economic stimulus in the Northwest Corridor as rapid rail transportation reaches out and people find they have a fast, economical and non-polluting means of travel.

"After all," he said, "transportation is people. It is not just money and jobs."

The invocation and benediction were given by the Rev. Edwin Lane, minister of the First Parish Church, Cambridge.

Following the ceremony, red ribbons across the doorway to the new station were cut, and officials and guests entered to tour the new facility.



## Merchants on the Line Plan "T'rrific" Sales Days

Construction associated with the MBTA's Red Line Northwest Extension will not harm customer traffic and business in Harvard Square, Porter Square and along Massachusetts Avenue if local merchants and the MBTA have their way. A cooperative effort between the MBTA and a hard-working group of businessmen, called Merchants on the Line (MOTL) is underway.

This business group is working closely with the MBTA to bring crowds right into the construction area through special promotions and sales weeks. "T'rrific" Sales Days, June 2 through 9, will be their first effort, and it promises to be a colorful and exciting week, highlighted by festivities and prizes. Opening day, June 2, will feature a number of activities and bargains.

Representatives of the MBTA Pass Program will be selling passes in the area's banks. MBTA passes will be the way to obtain discounts for purchases and services from Harvard to Porter Square.

Prizes will be another feature of "T'rrific" Sales Days, and there will be some great gifts given away. Coupons will be distributed and collected by merchants throughout the week. Then on June 12 there will be drawings held in the MBTA's new Harvard/Brattle Station. Although all details were not worked out at press time for this RED LINE NEWS edition, the early list of prizes included dinners for two at area restaurants, 10-speed bicycles, color televisions, Red Sox tickets and MBTA passes.

The Harvard Square to Porter Square area also will be adorned with colorful street flags for the sales week. And balloons, with a big "T," will be everywhere. The Cambridge Arts Council is developing a program of music and art to give the promotion an even more festive air. (Please watch for further details in local newspapers and on the radio within the next week.)

Another feature of "T'rrific" Sales Days will be the Red Line construction project itself, a 3.2-mile under-

ground extension that will include four new stations—at Harvard Square, Porter Square, Davis Square in Somerville and at the Alewife Brook Parkway. Visitors to the promotion will be able to see how a subway is taking shape from Harvard and Porter Squares. There will be MBTA personnel on hand to discuss facets of construction and informational literature will be available to describe what's happening at various locations.

Merchants on the Line is confident that "T'rrific" Sales Days will be the first of many promotions and special activities during the Red Line construction period. Its chairman, Simon Shapiro of Tag's Hardware Company in Porter Square, is working closely with Eric Weiner, director of the Cambridge Chamber of Commerce; and with Donna Garofano of the MBTA Red Line Development Office to make this promotion a model for future ones. In the future, the group hopes to expand its efforts into Davis Square and further into North Cambridge.

"T'rrific" Sales Days is a great time to visit and shop in Harvard Square, Porter Square and Massachusetts Avenue. It is an opportunity to get some bargains, and take a chance at winning one of the many prizes. It is also a wonderful time to see a subway construction project in progress.



MBTA passes will be available on a permanent basis at Out-of-Town News in Harvard Square, and at Harvard Trust Baybank in Porter Square during "T'rrific" Sales Days only.

## Notes from the Chairman



Within the next few years, residents of the Northwest Corridor will enjoy the benefits of an improved mass transit system in their area, and a closer link between the commercial centers of Cambridge and Boston.

The extension of the Red Line in Cambridge and into Somerville has long been considered in concept as a viable means of meeting the transportation needs for a region that has increased significantly in population. The concept is well on its way to becoming a reality.

Construction of the extension is progressing rapidly. Major activity is underway in Harvard Square, and the tunnels are being built from Harvard Square and Davis Square in Somerville to Porter Square. I also am happy to report that the new Davis Square Station has been advertised for bid, and the contract is scheduled to be awarded within the next few weeks.

As chairman and chief executive officer of the MBTA, I am very concerned that construction of this extension proceed with as little disruption as possible to the impacted communities. I have placed high priority on pro-

grams encouraging the spirit of cooperation between the MBTA and the residents and the business communities of Cambridge and Somerville. Community participation has been the cornerstone of this project. This I heartily endorse.

With that in mind, I would like to take this opportunity to thank the many citizens of the areas whose understanding and patience, and in many cases working efforts, have encouraged this spirit of cooperation to flourish.

Merchants on the Line, a hard-working group of business people who have come to the forefront to assist, should be praised for their promotion, "G'rific" Sales Days, set for next week. I am confident that the time and energy provided to this effort by our Red Line area merchants will result in this promotion being a great success.

I also would like to thank those residents of Somerville

and Cambridge who welcomed MBTA representatives and their consultants during the recent MBTA-initiated preconstruction property inspection program. Their courtesy is much appreciated. By the way, this program is still on-going. Many of the reports have been distributed, and the remainder will be delivered promptly as they become available.

And again, I would like to express my appreciation to all residents and property owners who live in the construction areas for their tolerance and understanding.

Our goal is to assure a project that is consistent with community and regional goals, and to accomplish this end in harmony with all concerned.

Robert L. Foster  
Chairman and Chief Executive Officer, MBTA

## Harvard Square Project Begins

Harvard Square is busier than ever these days with construction of the new Red Line subway station in full swing.

Since the end of March, Perini Corporation, the Harvard Station contractor, has moved an office, workers and equipment into the Square area, and has undertaken preliminary work in the Square and at Flagstaff Park. Their presence will become more visible in the next couple of months as work progresses.

The Flagstaff Park area has been the scene of much of Perini's activity. Some of Harvard Square's historical landmarks have been removed and set aside for safe-keeping (see story on page 3), and a subcontractor for Perini will be drilling and setting earth support structures (soldier piles) in the park in the near future. The concrete and brick portals which served as the entrance to the former bus tunnel also are being demolished.

Simultaneously, preparations have been made for the construction of earth-supporting slurry walls along the Massachusetts Avenue side of Flagstaff Park. (A detailed description of slurry wall construction is provided on page 4.) Guidewalls, which are the first step in the slurry wall process, have been constructed on both sides of Massachusetts Avenue, just south of the park. Those 24-foot long walls now will be used as guides to dig and build an underground wall, which will provide ground support during construction and become part of

the station when work is completed. Some utility and duct relocation will be necessary during this portion of construction.

In the Square near Holyoke Street, preparation of slurry wall construction also is underway. Guidewalls are being built between Holyoke and Boylston Street on the south side of Massachusetts Avenue, and excavation for the construction of slurry walls is about to begin. Again, some ducts will be relocated during the wall construction.

Prior to building the walls, an old subway entrance in front of Holyoke Center and buried since 1970 was demolished. Interesting to note, the new Harvard Square station will have an entrance close to this location.

The section of Massachusetts Avenue between the Harvard Trust and Church Street has been a major construction activity center. The need to relocate some utilities required the removal of the sidewalk, as well as the Harvard Coop clock and the canopy over the complex of businesses. With the sidewalk being excavated, pedestrian traffic has been moved into the street with a barrier protecting pedestrians from traffic. Access to the business is being provided by walkways over the excavated area.

In the center of the street, soldier piles will be drilled and set into the ground to support a temporary deck of steel and timber, which will remain in place during this phase of construction. The Cambridge Electric Company has relocated some utilities in the area. Perini is making preparations to build slurry walls here.

## Survey of Homes Underway

The MBTA has completed 61 pre-construction housing inspections within the cities of Somerville and Cambridge to ease residents' concerns about the impact of Red Line construction.

Development Management Consultants Inc., the firm hired by the MBTA to conduct the property surveys, inspected 49 homes in the Davis Square area of Somerville. Another 12 inspections were made in Porter Square, Cambridge.

Inspection reports, including color photographs of existing conditions, were sent to residents. In addition, the MBTA presented each property owner with a 5x7 color enlargement of the residence.

In addition to the MBTA's

surveys, Perini Corporation, through its consultant, Vibra-Tech Inc., inspected 67 properties in the City of Somerville. As a result of the same resident concern that prompted the MBTA program, Perini Corporation inspected many more properties than the number required by their contract with the MBTA to build the Davis to Porter tunnel.

Through a reciprocal agreement with the MBTA, Perini is making copies of the Vibra-Tech survey reports available.

The MBTA program still is open to affected residents by making application to George Holland, Red Line Development, 58 Day Street, Somerville, 628-1845.



George Holland of the MBTA Red Line Development Office inspecting the home of Francis Iori of 10 Dresden Circle in Somerville.



## Station Bids Due for Davis Square

The MBTA is scheduled to open bids May 31 for the construction contract for the Davis Square Red Line Station. Construction is scheduled to begin in late summer or early fall.

The new Davis Square station was designed by Goody, Clancy and Associates of Boston. Included in the design plans are physical improvements to Davis Square. The plans have been presented to various Davis Square civic and business groups during the past several months, and have received excellent response.

Under the plans developed by the Davis Square Task Force, the heart of Davis Square will be transformed from a railroad crossing, signal tower and parking lot to an attractive landscaped pedestrian area. A new plaza will extend from Holland Street and College Avenue. This brick-paved area will be dotted with trees, benches and tables. To the west of Holland Street, where the present railroad tracks are located, a landscaped municipal parking lot will be built. The railroad right-of-way between College Avenue and Grove Street will become an exclusive tree-lined busway to accommodate those vehicles that now lay over in the Square.

The Station will have two entrances, one at College Avenue and the other at Holland Street, each leading to the central mezzanine. All levels will be connected by stairs, escalators and elevators for the handicapped and the elderly.

## MBTA Preserves the Past While Building the Future

The General Sumner Statue has been removed from Flagstaff Park and is being stored in Framingham by the Perini Corporation during Red Line construction in Harvard Square. When construction of the new Harvard Square Station is completed, the statue, which will be cleaned and its pedestal refurbished, will be set up in a new mini-park called MacArthur Square.

This new mini-park will be located on Massachusetts Avenue opposite the First Parish Church, just north of the pedestrian crossing and where the information booth was located. It will be a triangular-shaped island, 200 feet long on two sides and 90 feet long in the rear. The statue will be set against a background of trees. The square also will provide an area for bicycle parking.

The statue's new home is looked upon as a positive result of Red Line construction to many. At Flagstaff Park, General Sumner's likeness was isolated, and located on concrete with no surrounding landscape. MacArthur Square will be an attractive location. The statue will be closer to the Square, where the public can more easily appreciate it.

The General Sumner statue is just one of many historic landmarks in Harvard Square that are being preserved during construction. Because Flagstaff Park and the Cambridge Common are listed on the National Register of Historic Places, the MBTA and a panel of representatives from local, state and federal commissions spent many hours deciding how many of the landmarks should be removed and preserved.

The most fascinating aspect



Above, the Harvard Square kiosk in the early days. Left, General Sumner's statue is trucked from its former location in Flagstaff Park for future installation in MacArthur Square.



Photo: Paul Foley

of this historic preservation involves the kiosk, the present entrance to the Harvard Square Subway Station. Under an agreement involving the MBTA, the Massachusetts Historical Commission, the Urban Mass Transportation Administration, the Advisory Council on Historic Preservation and the Cambridge Historical Commission, the kiosk will be taken apart brick by brick, stored, renovated, and then replaced in the Square for use as concession space. The kiosk will be removed in about 18 months, when the present subway entrance is closed for construction.

Also being preserved during construction is the famous Harvard Coop clock, which along with the canopy over businesses between the Coop and Church Street on Massachusetts Avenue was taken down. A new canopy is being designed for installation after construction. Arrangements are being negotiated for the possible preservation of a clock and some mosaic signs in the Harvard Square station, as well as for a granite marker in front of Harvard University's Lehman Hall.

The walls bordering the entrance to the recently-closed bus tunnel also will be removed and replaced with a lower concrete wall and wrought-iron fence, allowing a view of the park.

The famous wall along the Harvard Yard will also be removed during construction. The fence portions will be dismantled and rebuilt, and the masonry work and ironwork will be cleaned and reused as part of an agreement with Harvard University.

## Construction Update

**PORTER SQUARE PILOT TUNNEL--** The pilot tunnel at Porter Square has been completed, and is ready for engineers and prospective bidders for station construction work to inspect the geology. A stairway has been built which provides access to the tunnel, and the area has been secured with fencing to ensure safety. The pilot tunnel will serve as one of the entrances to the Porter Square station after construction.

**RELOCATION OF WATER MAIN (Porter Square)--**The Perini Corporation is in the process of welding portions of the 48" water main, which was relocated through Porter Square to allow for station construction. The welding is about 80 percent complete, and the project is expected to be finished by late June.

**HARVARD SQUARE TO PORTER SQUARE TUNNEL--**Morrison-Knudsen and their associates continue to work on the relocation of a 48" water main at Jarvis Street. At Garfield Street, the trench for the relocation of another 48" water main has been backfilled. Traffic barriers for the construction of the Garfield Street vent shaft have been installed and a pedestrian walkway built, both of which will remain for the duration of construction. Work has begun on the Garfield Street shaft; piles are being driven into the ground. At Porter Square, slurry wall construction is underway for the south access shaft to Porter Square Station, and is approximately 60 percent complete. Finally, the rail spur at the Cambridge City Dump and haul-

road which feeds it is complete and the dump is ready to receive materials from the various construction sites.

**DAVIS SQUARE TO PORTER SQUARE TUNNEL (Somerville)--**The Perini Corporation is excavating rock for the construction of the Grove Street shaft. Blasting should take about 40 days on a two-shift basis. The Perini Corporation is signaling residents in the area and the Lowe Elementary School prior to each blast. Loading and storage facilities for the excavated material is about 70 percent complete. Perini has begun construction of the Summer Street vent shaft; soldier piles have been set, and excavation of the soil (overburden) has started.

## MBTA Provides More Parking for Shoppers

Merchants and businesses in the Garfield Street area of Massachusetts Avenue now have additional parking for their customers as a result of a lease agreement between the MBTA and March Realty Trust for use of property at 1718 Massachusetts Avenue in Cambridge.

The MBTA last month signed an agreement with Robert Banker of March Realty Trust for use of the 14,586 square foot lot next door to the Ground Round restaurant. Effective May 1, the parking area is being operated by the City of Cambridge.

The acquisition of this property for commercial parking was one of the primary goals of Merchants on the Line, a group of concerned businessmen working to assist mass transportation while insuring that Red Line construction proceeds with as little disruption to businesses as possible. The group is composed of retailers who geographically represent the Red Line construction area, and is chaired by Simon Shapiro of Tag's Hardware Company in Porter Square.

According to Lauren Preston of Cambridge's Traffic Department, the new lot will provide about 36 parking spaces. The property is being graded and surfaced, and meters will be installed. A two-hour parking limit is in effect, allowing shoppers time to browse in area businesses.

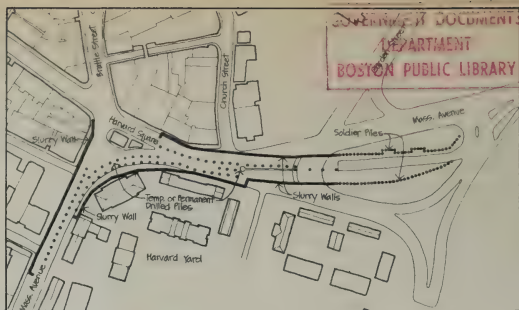
The lot will be leased by the MBTA through April 30, 1982. Its purpose is to replace parking on Massachusetts Avenue that has been lost due to the Red Line construction on Garfield Street. About 15 spaces were taken for that purpose.



For more information about the Red Line, please contact the MBTA Development Office at 58 Day Street, Somerville.

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## Slurry Walls Construction Explained

Slurry wall construction will become a familiar sight to everyone who shops or works in Harvard Square during the next year. Since the term is used frequently in printed matter concerning the Red Line construction project, the following is an explanation of why it is used and how it works:

The Franki Foundation Company, a Perini subcontractor, uses what is called the Bentonite Slurry Trench method of building an earth retaining wall around a construction site. The method is sophisticated and relatively new to the U.S. although it has been used extensively in Europe for decades. The method has significant advantages over pile driving, the method used most often to provide a foundation for construction, because it is less disturbing.

The Bentonite Slurry Trench method is similar to that developed by oil-well drillers, whose excavation work was aided by digging in a hole kept full of mud. Developed in Europe in the early 1950's, it relies on the simple concept of balancing the pressures exerted on the walls of an excavated area with the pressure of a drilling fluid.

In this case, the fluid is a watery mixture, or slurry, created by mixing water with a highly absorptive clay called bentonite, which expands to many times its original volume. The slurry prevents groundwater from

seeping in and the sides of the hole from collapsing.

The slurry trench method is being used to build the new Red Line station in Harvard Square because of its advantages over pile driving, and because a good portion of the work is being done close to buildings. With the slurry wall method, buildings need no underpinning protection. The resultant concrete walls are permanent, and will become the walls of the new Harvard Square station.

To build a guide wall in Harvard Square, a 5 foot wide trench is dug 4 to 10 feet deep in sections, which will each be 12 feet long. Two shallow parallel concrete walls, 3-34 feet apart, are set into each side of the trench sections. These will act as guide walls while a deep trench for the slurry wall is dug by a machine with a special clamshell bucket. This deep trench will be between 30 and 50 feet deep.

As digging proceeds, the hole is kept filled with bentonite slurry that is pumped from an on-site slurry mixer. When the trench reaches the required depth for a firm, solid base, a steel reinforcing cage is lowered into the hole. Concrete is piped in to the bottom of the hole, forcing the bentonite to the surface where it is collected and filtered for later reuse.

Once the concrete hardens, the slurry wall is in place. It then is secured to the ground with steel tiebacks.

The slurry wall will provide ground support when the contractor excavates for the Harvard Square station. Parallel walls on each side of the street, will provide a base for temporary street decking, allowing the contractor to work under the street without causing a disruption to traffic.

Slurry walls are being used predominantly in Harvard Square, but they are also part of other segments of the Red Line Northwest construction project. A slurry wall, for example, is being constructed for the south access shaft for the Porter Square to Harvard Square tunnel, next to the Commonwealth Lock building on Massachusetts Avenue. The slurry method also will be used for construction of the new Davis Square Station.

## George Wolfe, MBTA Runner

George Wolfe started running two years ago to lose a little weight.

Well, he lost the weight, and in the process got hooked on what has become one of the nation's most popular sports.

Wolfe, a junior inspector for the MBTA construction in Harvard Square and a North Cambridge resident, enjoys running so much that he now gears up to participate in marathons.

He recently ran in the prestigious Boston Marathon, and finished with an official time of three hours, two minutes, bettering his 1978 time by 18 minutes.



Wolfe works out daily with a group of Somerville teachers, who call their group the Fresh Pond Unattached Athletic Club. He also was one of three area runners featured in the recent PBS program, "Off Your Duff."

"It's a great way to keep in shape," says Wolfe, who now has his co-worker, Joseph Beaton, out running with him every day. Beaton, the office engineer for the MBTA's Harvard Square field office, now is up to 10 miles a stretch.

## Bus Schedule Reminder

William Hopewell, supervisor for the MBTA's Bennett Street bus garage, has noticed that passengers whose buses originate at the new Harvard/Brattle Station are getting off the Red Line at Harvard Square and walking to Johnstone's Gate to wait for their buses. The following reminder is for those who are following this pattern:

Buses #74 (Harvard-Belmont), #77 (Harvard-Arlington Heights Ltd.), #78 (Harvard-Park Circle), #84 (Harvard-Arlmont), #96 (Harvard-Medford Square), and #528 (Harvard-Hanscom Air Force Base) originate at the Harvard/Brattle Station. Hopewell suggests that Red Line passengers who ride into the Square to catch these buses may ride the subway to Harvard/Brattle, and get their buses there. Since buses begin their departures at the station, there is a better change of getting a seat. The new Harvard/Brattle Station is now the last stop on the Red Line.



# RED LINE NEWS

Number 8 August, 1979

## MBTA Awarded \$187.6 Million for Red Line



Mass. Secretary of Transportation Barry Locke (center, left) accepts award for \$187.6 million from former U.S. Secretary of Transportation Brock Adams. They are flanked by Rep. Louis Nickinello and D.O.T. New England Representative George R. McCarthy. In the background are Rep. Marie Howe and City Councillor Mary Ellen Preusser.

In what turned out to be one of his last official acts, former U.S. Secretary of Transportation Brock Adams came to Cambridge to award the MBTA a \$187.6 million federal grant for continued construction of the Red Line Extension to Alewife Brook Parkway.

The check was presented on July 19 during a ceremony in the midst of Red Line construction at Flagstaff Park, near Harvard Square. Numerous federal and state transportation officials and representatives from Cambridge and Somerville participated in the festivities.

Barry M. Locke, Secretary of Transportation and Construction, representing Governor Edward J. King, accepted the award. He noted that the grant will provide an estimated 3,100 construction jobs during the next three years, under contracts that the MBTA plans to award before the end of this year.

MBTA Chairman Robert L. Foster, although unable to attend the ceremony because

of MBTA budget hearings, sent word that the immediate impact of the grant will be the execution of a \$29.2 million contract with Perini Corporation for the construction of the Davis Square Station. Work is expected to begin there this month.

The grant also will permit construction of the Porter Square Station, Alewife tunnel and the Alewife Station/Garage complex. The grant also covers a series of contracts for railroad relocation work, which is required for extension.

Secretary Adams concluded the ceremony by donning an MBTA hard-hat and touring the Flagstaff Park construction site and boarding the Red Line.

Among dignitaries attending the ceremony in addition to Secretary Adams and Secretary Locke were: Gary Gayton, Associate Administrator, UMTA; George R. McCarthy, New England Representative of the U.S. Department of Transportation; Peter N. Stowell, Regional Director of UMTA; Secretary of the Commonwealth Michael J. Connolly; John Wofford of D.O.T.'s General Counsel's Office in Washington; Senator Joseph B. Walsh and Representative Louis Nickinello, chairmen of the Senate and House Joint Transportation Committee and several members of their committee; Representatives Sandra Graham of Cambridge and Marie Howe of Somerville; Somerville Mayor Thomas August; numerous Cambridge city councillors and Somerville aldermen; the MBTA Director of Construction Richard J. Dempsey, and Charles W. Appley, Special Assistant to the Chairman for Construction.



## "T'rific Sales Days" Attract Thousands to Festivities

Thousands of persons shopped in Harvard Square, Porter Square and along Massachusetts Avenue in Cambridge last month during "T'rific Sales Days," the first cooperative effort of the MBTA and the Merchants on the Line (MOTL) aimed at attracting consumers to Red Line construction areas.

Crowds of shoppers took advantage of the sales offered by the more than 300 participating businesses; and 35 lucky ticket holders were awarded prizes during the drawings that concluded the sales week. Musical groups and artists performed throughout the week of June 2-9 atop the roof of Out-of-Town News, and were enthusiastically received by the crowds of onlookers. On Saturday, June 2, balloon lovers of all ages assisted personnel from the MBTA, the

Cambridge Arts Council and MOTL with inflating, distributing, and installing several thousand balloons, most of which were used to decorate Harvard Square, Massachusetts Avenue, and Porter Square.

Merchants on the Line, which co-sponsored the sales week, was enthusiastically endorsed by Robert L. Foster, Chairman and Chief Executive Officer of the MBTA, who spoke from a WCAS mobile and in Harvard Square.

Stressing his priority concern that community participation continue to be the cornerstone of the Red Line construction project, Mr. Foster praised Merchants on the Line for encouraging a spirit of cooperation, and noted that, "Without their efforts, we wouldn't be where we are today."

"T'rific" continued on page 4

### •MBE Seminar Scheduled

The MBTA is co-sponsoring two technical assistance workshops for minority business enterprises. Sessions will be held August 29 and 30, and Sept. 5 and 6 at the Park Plaza Hotel, Boston.

Workshop topics include: marketing and public relations; contract bonding; bid preparation; joint venture formation; and venture capital sources.

No registration fee is required. For additional information, contact the MBTA Affirmative Action Office at 722-3140.



Robert L. Foster, MBTA Chairman, and Eric Weiner, Cambridge Chamber of Commerce Director, at "T'rific Sales Days."



A good deal of construction has been taking place in front of the Cambridge Savings Bank and Mug-o-Muffin Restaurant. Workers, above, are preparing to install pre-fabricated, concrete guide walls for the construction of the underground walls of the new Harvard Square Station.

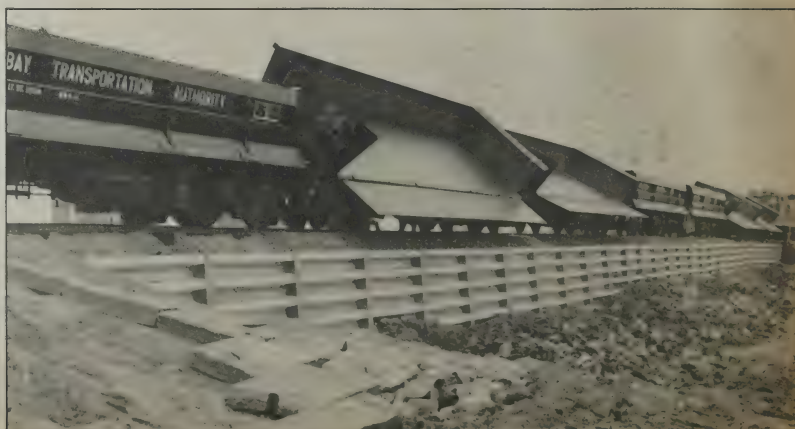


These two pre-fabricated concrete walls will provide guidance while a crane with a clam-shell shaped bucket excavates the earth between to build the underground walls of the new Harvard Square Station. These "guide walls" are located in front of the Holyoke Center, where construction of the underground slurry walls will begin within the next couple of weeks.



Bentonite slurry used in the construction of slurry walls in Harvard Square is manufactured and stored in this complex of mixing machines and tanks, referred to as the "Mud Plant". The slurry mixture, which looks like mud, is used as a temporary soil replacement during excavation to prevent the surrounding earth from collapsing into the excavated area. This "mud plant", located by the kiosk, is supplying slurry through pipes under Massachusetts Avenue to a construction site near Flagstaff Park.

Flagstaff Park, below, is being excavated for the construction of the new Harvard Square Station. The contractor is removing the retaining walls of the entrance to the old bus tunnels, which are being demolished for construction. Resembling a big corkscrew, an augering machine, shown next to the church steeple, is drilling steel beams around the boundaries of the park to build an earth retention wall for excavation.



Side-dump car at the Cambridge City Dump has just emptied excavation materials from construction sites in Somerville.





Rock excavation at Grove Street, Somerville, continues for the construction of the two 75-foot deep shafts. Pictured are some of the preparations taken for blasting. Timber decking and rubber matting are placed over the shafts to help control sound and to keep pieces of rock from flying.



Work is well underway on the construction of this vent and emergency exit shaft at Summer Street in Somerville. Workers are installing timber lagging between steel beams to support the shaft, which will be about 115 feet deep when completed. Rock excavation is expected to begin here within the next two weeks.



The pilot tunnel has been completed and will be used to give potential bidders for the Porter Square Station contract an opportunity to view the geological formation under Porter Square. This dramatic view of the tunnel, looking north, shows a portion of the 490 foot long tunnel, which extends approximately 85 feet below ground. The pilot tunnel will eventually become one of the entrances to the new Porter Square Station.

A shaft to provide access for the construction of the Porter to Harvard tunnel is being built in Porter Square, between the Commonwealth Lock Building and the commuter rail tracks. The shaft, which will be about 120 feet deep, is being constructed directly in front of the wooden barrier, to the right of the crane. Alongside the railroad, tracks are being extended and renovated to permit transportation of construction materials from this and other sites to the Cambridge City Dump.



Overview of the Grove Street site shows, at right, the inboard tunnel shaft, and center, the outboard shaft. Empty sidecars, which haul excavation materials from this site as well as from the Summer Street shaft, are in the background.



A muck machine removes materials from the inboard tunnel shaft at Grove Street. Blasting and rock excavation is proceeding for the driving of tunnel in all four directions (inbound to Porter Square and outboard to Davis Square) from Grove Street.

## Recommendation: No Injunction

A federal magistrate has recommended against issuing a preliminary injunction that would halt construction of the Red Line Northwest Extension for additional environmental studies.

U.S. Magistrate Laurence Cohen last month responded to the Red Line Alert suit by recommending that U.S. District Court Judge David Nelson deny the injunction on the basis that the Environmental Impact Statement (EIS), prepared for the project, "is comprehensive in scope, detail and analysis of alternatives." A decision by Judge Nelson to either concur with that recommendation or hold a new hearing is being awaited.

Magistrate Cohen made his recommendation in a 32-page opinion, which he began by stating that the injunction is being sought, "in a setting where long lines to gas stations bear witness to mankind's increasing need to develop technological alternatives to the passenger vehicle as a means for urban transportation, and where industrial smog and blight reflect our shrinking natural environment."

Cohen disagreed with Red Line Alert and Atty. Gregor McGregor's contention that the EIS did not sufficiently address several issues. The group had argued that several changes were significant enough to warrant a supplemental environmental impact

study. Included were the terminus at Alewife, use of a ventilation shaft at Garfield St. for excavation, and use of conventional blasting techniques.

When addressing each of the issues, Cohen quoted the EIS, and concluded that Red Line Alert failed to demonstrate that the federal authorities (UMTA) authorizing construction had not met the requirements of the National Environmental Policy Act in the EIS.

"...NEPA requires an EIS sufficient to make responsible federal authorities aware of the environmental consequences of their actions," Cohen said. "The EIS in this case was and is comprehensive in scope, detail and analysis of alternatives."

"It is not enough to simply pick away at an environmental impact statement with a fine-tooth comb, suggesting here and there that more could have been said..., then leaving it to the court...to speculate that there might be irreparable injury to the environment."

He continued, "Preliminary injunctions are drastic remedies accommodating drastic needs. On the basis of the plaintiffs' showing, the equitable hand of this court should be stayed." This ruling followed the denial of a temporary restraining order, also filed by Red Line Alert, last October.



① Inspector Ed Goode explains Garfield St. construction to Cambridge businesspersons. Several site tours have been held in recent weeks, and will be scheduled frequently. Check local newspapers for dates and locations, or call Donna Garofano at 628-1845. Special tours can also be arranged.

## Women in Construction

Women who are interested in working in the construction industry have a greater opportunity to become tradespersons. A federally-funded program has been established, aimed at equipping women with the skills for a career in the construction trades.

The Women in Construction Project is funded under the Comprehensive Employment Training Act (CETA) and sponsored by Jobs Inc., the Massachusetts State Building and Construction Trades Council (AFL-CIO). Applications are being accepted for the second semester of its 18 week career preparation program, which will be held at six locations, including Brighton, beginning October 14. To qualify, a woman must meet CETA requirements, as determined by her local CETA Office.

Training is given in 17 building trades, a variety of which are offered each semester. Of the 18 weeks, the first five are devoted to orientation, during which participants spend a week and half in each trade offered at the site. The remaining 13 weeks involve rigorous training in a specific trade; and enrollees are also taught how to deal with problems specific to women working on a construction site.

While learning, women enrolled in the program are provided with a stipend, and travel and equipment expenses. Child care also is available. The Women in Construction Project assists graduates with union membership and job placement. Last year, 70 percent, or 56 of the 72 graduates were placed in jobs in their trade.

Federal law now requires that women constitute 5 percent of the work force of any construction job involving \$10,000 or more in federal funds. This figure will escalate to 6.9% in May, 1980. Another federal law requires that women represent 20 percent of each incoming apprenticeship class within the trade unions.

The Women in Construction Project staff have been working with Red Line contractors, and report a good response. Some commitments already have been made to fill positions with program graduates, and additional commitments are expected. The MBTA Red Line Development Office also has offered its assistance in publicizing the program.

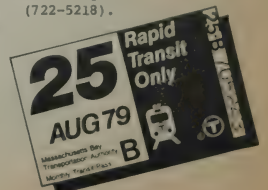
Cambridge and Somerville women who wish to apply are encouraged to contact their local CETA Office to determine if they are eligible. For further information about the program, those interested may contact Women in Construction, Room 711, 11 Beacon Street, Boston (367-4744).

## Pass Program in Cambridge

Area commuters can now enjoy the convenience of buying passes in local banks every month.

MBTA monthly passes, which were sold in Cambridge during the recent "①'rific Sales Days" promotion, will be available the last six working days of every month at three Cambridge locations: the Charlesbank Trust Company, 1 Boylston Street, Harvard Square, and 671 Massachusetts Ave., Central Square; and the Bay Bank/Mid-dex, 225 Cambridge Street, Lechmere Square.

MBTA passes also are available through many Cambridge-area employers who endorse this time, energy and money-saving method of commuting. Additional information is available by calling the MBTA Department of Marketing and Sales (722-5218).



"①'rific" continued



"①'rific Sales Days" concluded with drawings at the Harvard-Brattle Square Subway Station. Simon Shapiro, owner of Tag's True Value Hardware Store in Porter Square, and John K. Leary, Jr., Assistant Director of Construction for the MBTA, drew coupons for a large variety of prizes, many of which were donated by Cambridge merchants and businesses.

Irving Gibson of Somerville was the grand prize winner of a weekend for two at the Hyatt-Regency Hotel in Cambridge. Prizes awarded to other lucky ticket holders were: a ten-speed bicycle from Sears of Cambridge, dinner for two at Fantasia's Restaurant, gift certificates from Tag's True Value Hardware, a day pack from the

North Slope, a Panasonic clock radio from the Harvard Coop, one month of free parking in Harvard Square donated by the Cambridge Traffic Department, brunch for two at 33 Dunster Street, lunch and dinner at the Avero Restaurant, a pyrex casserole dish from Stadium Hardware/Gourmet Bazaar, dinner for two at the Ground Round Restaurant, a dinner at the Riverfront Chili Restaurant, a framed Lummas etching from Botolph Gallery, certificates for free lessons at the Suk Chung Institute of Tae Kwon Do, a television stand from Serra's T.V., a pottery lamp and shade from Journeyman, a gift certificate from Harvard Book Stores, an African necklace from Bernheimers Antique Art, and a certificate for dinner for two at the Holiday Inn.



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# RED LINE NEWS

Number 9 October 1979

## MBTA Breaks Ground at Davis Square



More than 200 persons joined Governor Edward J. King and MBTA Chairman and Chief Executive Officer Robert L. Foster September 13 for a ground breaking ceremony for the Davis Square Station, the second of four stations to enter the construction phase in the MBTA's Red Line Northwest Extension.

Chairman Foster pulled the lever of a front-end loader, overturning the first mound of earth for construction of the station. This followed remarks lauding the effort and cooperation of federal, state and local officials, the construction industry, and the Somerville community.

"Of all the transportation goals set in 1974, the Red Line extension has progressed the most swiftly," Mr. Foster told the gathering. "You should be proud because it is your cooperation and hard work which have made this day possible."

Governor King, Barry M. Locke, Secretary of Transportation and Construction for the Commonwealth, and Somerville Mayor Thomas F. August joined Mr. Foster in describing the Red Line Northwest project as a public transportation endeavor that will contribute to the economic growth and prosperity of the entire Boston area, as well as improve transportation services for Cambridge and Somerville residents.

Governor King noted that more than 250 construction jobs and 2,500 related jobs will be generated by the station construction. The entire Red Line will provide

employment for 3,100 construction workers and more than 30,000 related jobs.

Community participation was cited by the speakers as vital to the Red Line project, and was in evidence during the ceremony, when several residents with picket signs protested the prospects of late night construction of the Red Line Davis to Porter Square tunnel.

Mr. Foster recognized the protestors and told them the MBTA would be responsive to their concerns. "They have a message for us and we shall work with them," the chairman said.

Somerville Mayor August also addressed construction issues and emphasized that the long-term economic benefits of a Davis Square Red Line stop are well worth the inconveniences ahead.

"We're here today to say we're willing to put up with some sacrifices and make a commitment so the people who come behind will benefit," he said.

"Those communities who are not willing to make sacrifices--they'll die. We'll prosper."

Governor King, Secretary Locke and Mayor August joined Chairman Foster in breaking ground for the new station. Also donning hard-hats to overturn the ground were Francis M. Keville, Assistant Director of Construction-Northwest for the MBTA, and Joseph Perini, Vice President of Perini Corporation, Station Contractor.



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## Notes from the Chairman



Last month's groundbreaking in Davis Square, Somerville, and the start of a full-face tunneling operation between Porter and Davis Squares signify that the construc-

tion of the Red Line Extension-Northwest is in full swing.

This is indeed an historic point in transit construction, marking as it does the culmination of years of planning, effort and cooperation among numerous individuals and agencies. This long process, which began years ago with the Boston Transportation Planning Review, is finally bearing fruit. I am extremely proud to be leading the MBTA in this exciting venture.

While the benefits of this construction are numerous and indisputable, I realize that at times in the next few years it will be somewhat of an inconvenience to you. Please be assured that the MBTA intends to continue

working with representatives of Cambridge and Somerville governments, their residents, and businesspersons to ensure that the construction is as nuisance-free as possible. You are urged to call the Red Line Development Office at 628-1845 with your questions and concerns, and they will be addressed immediately.

While we are on the subject of community participation, let me congratulate the Merchants on the Line on having reached two landmarks: first, the shoppers' parking lot on Massachusetts Avenue next to the Ground Round Restaurant has been paved, and the City of Cambridge Traffic Department will be installing meters shortly. This is something for which MOTL has worked

diligently, and I am happy that their goal is being realized.

Next MOTL is about to select a consultant to formulate a business stimulation program for the Red Line construction area (see related story below). I believe that this program is unprecedented in the transit industry. It represents an unusual coalition of business and government, and I wish to congratulate the Merchants on the Line on their progress thus far.

R.L. Foster  
Chairman and Chief Executive Officer

## Self-Guided Tours

Looking for a different way to spend a sunny autumn afternoon? Consider spending some time learning how to build a subway.

Construction of the MBTA's Red Line Northwest Extension has progressed to the point where you can see the subway extension taking shape at several locations along the 3.2 mile alignment. You can observe the sites closely by standing on the sidewalk in most cases, or by looking through plexi-glass windows that contractors have installed for passers-by. In addition, informational flyers explaining construction activity at each of the various sites have been prepared by the MBTA Development Office and posted at each location.

In Harvard Square, for example, you can watch and read about slurry wall construction and learn how this sophisticated technique makes excavation possible in as busy an area as Harvard Square. In Davis Square in Somerville, you can stand over the spot where a 23-foot diameter tunnel is being excavated more than 75 feet beneath ground, and learn about a 46-foot long machine that aids in the excavation.

You now can walk along the Red Line Northwest alignment as you would Boston's Freedom Trail, and learn about one of the most complex and fascinating transportation construction projects in history.

Begin in Harvard Square, where "Construction Notes for Sidewalk Supers" are posted at three locations. Then walk north up Massachusetts Avenue (towards North Cambridge), stopping at construction sites at Jarvis Street, Garfield Street, and in Porter Square. From there, walk across the Porter Square Shopping



Jane Millikan of Somerville views construction through the sidewalk superintendent window in Porter Square.

Sidewalk super notes at the site of the Davis Square Station in Somerville



Center parking lot to Elm Street, Somerville. Proceed down Elm Street to Davis Square, where you can view ventilation shafts on Summer Street and the intersection of Grove Street and Highland Avenue. Then complete your tour at the intersection of Highland Avenue, Holland Street and College Avenue at the site of the Red Line Davis Square Station.

## MOTL to Select Consultant

The Merchants on the Line, the coalition of business, civic, and MBTA representatives formed last year, is in the process of selecting a marketing public relations firm to stimulate business in Red Line construction areas.

MOTL, chaired by Simon Shapiro of Tag's True-Value/Houseworks, is embarking upon their largest project thus far. After receiving the endorsement and full approval of MBTA Chairman R.L. Foster, they advertised, under the auspices of the MBTA, for a consultant to devise and implement a business stimulation and information program for the next year. More than twenty firms responded with letters of interest, and the preliminary screening was completed in late September. By mid-November, the Consultant Selection Committee expects to have reviewed all formal proposals and completed the interview process. The chosen firm will implement the first Harvard Square-Davis Square promotion in January.

This program is believed to be unique in the nation, and has been possible only because of the high level of cooperation among the merchants, the MBTA, Harvard University, and City of Cambridge representatives.

In addition to this project, MOTL has successfully lobbied for additional shoppers' parking at the Ground Round Restaurant (near Garfield Street), and is active on a number of other issues. Businesspersons who have concerns related to Red Line Construction are urged to call their representative on Merchants on the Line. Besides Mr. Shapiro, voting members include: Jim Argeros of the Harvard Coop; Frank Kramer of the Harvard Bookstores; Frank Cullen of Journeymen (Galeria Shopping Complex); Allan Elgart, Adornments and Wendy Landry, Fabrications (both on Massachusetts Avenue); Ed Murphy of Sears. Roebuck & Co., Paul Errico of Errico Studios, and Margaret James of James, Ltd. in Davis Square.



Gathered at the Grove Street construction site during the Davis Square Sidewalk Sales are (l. to r.): Yogi Bear, Frank Stellato, Dick Floren of the Perini Corp., Smokey the Bear, Mike Presna of Thom McAn Shoes, Dan Giargiani of the Dept. of Environmental Management/Bureau of Fire Control. The Davis Square Sidewalk Sales were sponsored in part by the MBTA and the Merchants on the Line.



# Construction Unearths Valuable Artifacts

The lines of time are being transcended in Cambridge as a result of construction of the Red Line Northwest Extension.

As the MBTA builds a subway extension that will be significant in formulating the Cambridge of the future, archaeologists are uncovering important traces of the city's past, and remnants of a mid-17th century Puritan society. They are hopeful that traces of other time periods will be found as construction of the extension continues.

The Institute for Conservation Archaeology of Harvard University's Peabody Museum, acting as a subcontractor to Red Line engineering consultant Sverdrup & Parcel and Associates, uncovered what is believed to be the backyard of a house built and occupied around 1635, when it did some exploratory excavation in preparation for the moving of Harvard's Wadsworth Gate in August.

Performing its contractual obligation of investigating potentially valuable sites before construction begins, ICA archaeologists discovered a sheep burial under about eight inches of asphalt and gravel. Further exploration resulted in the finding of two 1613 farthings, pieces of Bellermino stoneware (dated between 1650-1675), a 17th century pewter spoon, tobacco pipes, portions of jugs, earthenware mugs, green window glass (dated late 17th century), a letter seal from that period, common pins, pieces of tin-enamelled pottery (commonly known as delft) and food remains, including fish, sheep and cow bones.

The discovery of the sheep bones, believed to have been buried between 150 and 250 years ago, prompted a meeting between the Institute, Harvard University, the Massachusetts Historical Commission and the MBTA at which a scheme for uncovering the artifacts, without interfering with Red Line work, was negotiated. As a result, the archaeologists were given more than three weeks to excavate the site.

The moving of the Wadsworth Gate, performed by a contractor for Harvard, resulted in the additional discovery of a 17th Century well that appears to have been abandoned in its time and used as a trash pit.

Because the well is located on a site designated for slurry wall construction related to the new Harvard Square Station, the finding prompted another series of meetings between the Institute, the MBTA and state historical officials to decide whether the artifact should be preserved, and if so, how it should be undertaken.

At press time for this issue, a decision regarding the



*Patience and skill are necessary in excavating valuable remnants of the past.*

disposition of the well was under negotiation. A sample of the contents had been taken and were being analyzed to determine their value. A decision was to be made whether the well would be excavated intact or additional samples of the contents (known as coring because a long tube is inserted into the ground to extract materials) were to be taken instead.

The Wadsworth Gate site is just one of thirty-four that the Institute had identified as being potentially valuable when it researched and tested areas along the path of the Red Line Extension, under its contract with Sverdrup & Parcel. Further investigation of some of the sites has been postponed, because the testings, done when immediate plans were to extend the Red Line to Arlington Heights, included the area between Alewife Brook Parkway and that section of Arlington. (To date, the extension has

been funded as far as Alewife.) Other sites have been eliminated because research and tests show the areas have been disturbed by too much construction over the years for any significant findings to be made.

There are several sites still slated for investigation; Michael Roberts, director of the Institute, believes they may result in significant findings. An area in front of the First Church Unitarian, near Church Street (where another portion of slurry wall will be built) warrants examination. "We expect to find something there," Roberts said, but admits that he is not sure exactly what. The director says that representatives from the Institute will be "monitoring construction at this location." (Depending upon the site, archaeologists from the Institute either investigate an area ahead of construction or examine the earth as the work occurs. If

this, or any other site proves to be valuable, a plan will be negotiated for preservation so as not to delay construction.)

Another area that Roberts and his team are looking forward to examining more closely is Porter Square, where another Red Line station will be built.

Roberts says there may be remnants of an 18th century blacksmith shop and some 19th century store fronts under Porter Square. The Institute will be investigating that area in the near future before construction of the station begins. The director is hopeful that some artifacts will be uncovered despite the great amount of construction activity that has occurred in Porter Square over the years.

The Wadsworth Gate site, despite past construction and the bustling nature of

*Archaeology continued on page 6.*

# Construction Update

## Harvard Square Station

Slurry wall construction is the focus of Red Line activity in Harvard Square as the contractor, Perini Corporation, continues preparing for the excavation and building of the new Harvard Square Station.

Slurry walls, which are actually the underground walls of the new station, are being built in several locations, and have been completed in others. In the vicinity of Holyoke Center along Massachusetts Avenue, walls already have been installed. Walls between Dunster and Boylston Streets are in various stages of completion; as are those across Massachusetts Avenue, along the Harvard Wall, from the southern end of Flagstaff Park to the Wadsworth Gate. Scheduled for slurry wall construction during the next few months is the area between Church Street and Brigham's on the west side of Massachusetts Avenue. (For a description of how slurry walls are built, see the construction update on Davis Square Station.)



Slurry Operation at Boylston Street and Mass. Ave.; more sidewalks at far right

Meanwhile, in the Church Street area a 20-inch water main serving the City of Cambridge is being relocated, and preparations are being made to move another main—a 48-inch MDC feeder line to Boston. In both cases, these water lines are being adjusted to provide space for station construction. This work is

expected to take about two to three months.

In Flagstaff Park sub-contractors for Perini are continuing to build a "coffer dam", a large box-like area supported by steel beams and wood lagging that will allow for deep excavation. The park is being excavated to a depth of about 50 feet, to facilitate

construction of the new platforms and bus tunnels.

The ramps leading to the old tunnels are completely demolished. The contractor is punching holes in the roof of the tunnels to install traffic deck piles. These will support temporary decking for the maintenance of vehicular traffic while the demolition of the tunnel is underway. This process will require another month or two of work. Some landmarks, including the Charles Sumner Statue and a large flagpole, were removed from the park several months ago. They will be reinstalled in their original condition when construction is completed.

The contractor also is continuing to demolish sections of the existing station. A good portion of the work will be done in the early morning hours. However, some track demolition will require weekend closings of the Harvard-Brattle Station (see related story) on a temporary basis later this year.

## Harvard-Porter Tunnel

Shaft construction for the Harvard to Porter Square tunnel is progressing rapidly.

At Porter, the contractor, Morrison-Knudsen, White & Mergentime (a joint venture) is approaching the bottom of the 120-foot deep south portal access shaft. When it is reached, horizontal excavation for the tunnel to Harvard Square will begin.

Like the Davis to Porter Square tunnel excavation, a two-step process termed a "heading and bench operation", will be used until full-face tunneling is possible.

To do this, the arch or crown of the tunnel, known as the "top heading" will be blasted and cleared first. A support system will be installed to prevent rock from caving. This network supports the "top heading" during the "bottom bench" excavation which follows and will be expanded to support the full area when the "bottom bench" is cleared. This two-step process will allow the contractor to control the rock break, shaping the tunnel, until full-face excavation is underway.

The Garfield Street shaft has been excavated to the point where rock has been reached; blasting is re-

quired and has begun. Approximately 60 feet of rock must be cleared to reach the ultimate depth of a 130-foot deep shaft. The Garfield Street shaft will mark the deepest point in the Red Line Extension.

Access shafts for construction of the Harvard to Porter tunnel also are being built at the intersection of Jarvis Street and Massachusetts Avenue. Here, two shafts—for the inbound and outbound tunnels—are being sunk to a depth of about 100 feet. Earth support systems allowing for the mining of these shafts have been built. The contractor is excavating the earth in the outbound shaft, and will begin digging in the other. A gas line and sewer line also are being relocated near the Jarvis Street site.



Timber lagging secured between vertical steel beams provide support for the excavation of the Garfield Street shaft. In the photo, workers are installing the lagging while a mucking machine, used to remove soft earth (clay), stands by.



Rock excavation is continuing for the construction of the Porter Square shaft of the Harvard Square to Porter Square tunnel. In the photo, workers adjust an air hose at the bottom of the shaft, which now is about 80 feet deep. The Porter Square shaft will be 120 feet when tunneling operations begin.



## Davis-Porter Tunnel

The first full-face tunneling operation for the 3.2-mile Red Line Northwest Extension is underway beneath Grove Street, in Somerville, between Davis and Porter Squares.

A 46-foot long rock drilling machine that will be instrumental in building the Davis to Porter Square tunnel segment recently was delivered to the Grove Street construction site, and lowered into one of two 78-foot deep access shafts. The machine was put into operation almost immediately, drilling 10-foot long holes into the rock face of the inbound and outbound tunnels, enabling the placement of explosives to clear approximately 170 cubic yards of rock with each detonation.

By this week, the 23-foot diameter, inbound and outbound tunnels were extended approximately 190 feet towards Davis Square and about 300 feet towards Porter Square. From Grove Street, the tunnels are being driven on an upwards slope to Davis Square, where

they will join the Davis Square Station about 50 feet below surface. Both tunnels are being driven on a downwards slope towards Porter. They will be approximately 115 feet deep at Summer Street in Somerville, where a vent shaft is being built, and about 120 feet deep entering the Porter Square Station.

The rock drilling machine, according to representatives of the tunnel contractor Perini Corporation, is new to the U.S., although it has been widely used in foreign countries and Canada. Weighing approximately 41 tons, the "Atlas Copco Hydraulic Drill Jumbo" has three large drills that take the place of six regular air-operated drills. As a result, this machine will allow the contractor to drive the tunnels more quickly, cleanly and efficiently than if regular air-operated drills were used.

The Davis to Porter tunneling activity marks the beginning of actual tunneling operations associated with the Red Line Extension. At



Crane lowers forty-six foot long drill jumbo carefully into shaft.

Perini Corporation

other sites along the Harvard Square to Alewife Brook Parkway alignment, shafts to provide access underground for tunneling are still being constructed. The only other tunnel that has been built for the extension thus far is the 490-foot long Porter Square pilot tunnel, which was used by prospective bid-

ders for the Porter Square Station to view the rock formation under Porter Square.

Each (inbound and outbound) Davis to Porter Square tunnel will be approximately 2,770 feet long. It is expected that all excavation and concreting for this portion of the Red Line Extension will be completed by December 1980.

## Davis Square Station

The contractor for Davis Square Station, Perini Corporation, is scheduled to begin building its underground walls this week, as preparations for construction continue.

Excavation for slurry walls, which will become the permanent station walls, start in the west end of the Square, near the Somerville Theatre.

The Franki Foundation Company, working as a sub-contractor to Perini, has installed a slurry plant consisting of mixing equipment and storage tanks on College Avenue, just north of the railroad tracks. Equipment for excavating the walls also has arrived on the construction site.

For the past couple of months, Perini has been preparing for the slurry work by installing concrete, poured-in-place panels, called guidewalls, along the boundaries of the future station. Approximately 50 percent of these guidewalls have been installed; the remainder will be placed during the next few weeks.

The guidewalls are parallel and about two feet apart, and will be used to provide parameters for machinery during slurry wall excavation. Trenches, ap-

proximately 50 feet deep, will be excavated, and bentonite slurry (a mud-like substance) will be used as a temporary soil replacement until concrete displaces the slurry, keeping the trenches intact during excavation. The resulting walls will provide earth support during station construction as well as becoming its permanent structural walls.

Some utility relocation work will take place on College Avenue and Holland Street concurrent with slurry wall construction; certain utilities that needed to be moved to accommodate the station have been relocated already. This phase of preparatory work also will be completed during the next few weeks.

Slurry wall construction and additional preparation will continue for several months. Early next year, timber decking will be installed over College Avenue and Holland Street to maintain the traffic flow during excavation. Once this happens, station construction will be in full swing beneath ground, while normal day-to-day activities occur on the surface. The timber decking will be removed when underground construction is completed.



Up, Up and Away

Preparations for the construction of the Davis Square subway station began with the removal of a Boston & Maine signal tower, located in the middle of the Square. The two-story brick building that was built in 1952 and once used to regulate crossing lights and gates on College Avenue, was dismantled in a two-step process before a gathering of curious passers-by. The roof was lifted by crane after a cutting torch was used to sever the angle iron supports. Then, a backhoe demolished the brick structure.



## Gentle Handling for Harvard Gates

Steel packaging and a 125-ton crane contributed to the preservation of two Harvard University landmarks--the Lehman and Wadsworth Gates.

The gates recently were moved back 12 feet from the sidewalk along Massachusetts Avenue to provide space for slurry wall construction for the new Harvard Square Station. When station construction is completed, they will be returned to their previous location within the Harvard Wall, which was dismantled for construction. The wall will be rebuilt, using the original bricks according to restoration plans.

Moving the gates was a delicate project which required six weeks of preparation to prevent the cracking or crumbling of the stone structures. P & D Contractors of Allston performed the work under contract to Harvard University, as part of an agreement between the school and MBTA.

In order to move the 55-ton Wadsworth Gate, the contractor began by removing lights and stone urns from atop the structure. Then, a steel harness consisting of beams and angle irons was welded around the gate and under its granite foundations so the entire structure was packaged and reinforced. A 125-ton crane lifted the harnessed unit to no more than two feet off the ground at any time during the process, and moved it to its new location. The gate then was leveled and secured in place, where it will remain during construction.



Harvard Crimson

## Bids Opened for Porter Square Station

Bids for construction of Porter Square Station were scheduled to be opened publicly October 18. This represents the fifth major contract that is to be awarded for Red Line Northwest Extension construction.

Porter Square Station, one of four stations being built in conjunction with the 3.2 mile extension, will be located under the Porter Square Shopping Center and Massachusetts Avenue. The entrance will be located on the east side of Massachusetts Avenue. Cost controls imposed by the Urban Mass Transportation Administration preclude the construction of the planned west entrance at this time. However, this facet of the station will be phased in as soon as money becomes available.

The station's mezzanine will be shallow and sky-lighted. When constructed, this will be the deepest station in the MBTA system. There will be a landscaped plaza area featuring street furniture, bus shelters, and numerous other physical amenities. The design engineer is Cambridge Seven Associates. Construction of Porter Square Station is expected to begin by year's end, following the award of the contract.

Pictured at left is the Lehman Gate at Harvard University, prior to its being moved by crane to assure its protection during construction.

## Archaeology Continued

Harvard Square, is considered by Institute archaeologists to be a rare find.

Gray Graffam, who headed the team that did the excavation, said it is highly unusual to find artifacts in their primary context in ground undisturbed by construction in an urban context, especially a location as busy as the Square.

"Building construction and utility placements have cut through the ground for the past three centuries in Boston and Cambridge. The merchant building his house in 1782 and the shopkeeper adding his extension in 1840 have all contributed to both adding and destroying part of our historic past. Today, we still add; we still destroy. Yet, archaeology is the destruction of the ground in such a way that artifacts important to understanding the past are saved."

Graffam views the artifacts found in Harvard Square as significant keys to understanding everyday life in the



17th century in Cambridge. Using records, documents and archives, he is hopeful that the uncovered items will provide enough information to create a kind of photograph of what it was like in the city, once known as Newtowne, and how the average person lived.

Such a photo of 17th century life in Cambridge will be a very valuable asset when

Archaeologists from the Institute of Conservation Archaeology spent several weeks excavating pockets of 17th century artifacts in Harvard Square.

the city celebrates its 350th anniversary next year. According to Roberts, the Institute, the Cambridge Historical Commission, and the Cambridge Arts Council hope to join with the MBTA in putting together a major museum exhibit that will focus on the early beginnings of the City and document its growth to the present.

Roberts, who is excited



about the idea, said preliminary plans are to seek a National Endowment Association grant that will provide funds for both the exhibit and a back-to-the-roots program to be offered in schools and libraries. He is hopeful additional findings associated with Red Line construction will result in a comprehensive picture of Cambridge over 350 years.



## Harvard/Brattle Station to Close Weekends

During these hours, all diesel buses that normally begin and end their routes at Harvard/Brattle will stop and layover at the Johnston Gate, across the street from



Photo of Harvard/Brattle  
Station by Steve Rosenthal

Harvard Square Station, instead a shuttle bus will be instituted to transport passengers to the Waverly and Watertown trackless trolleys.

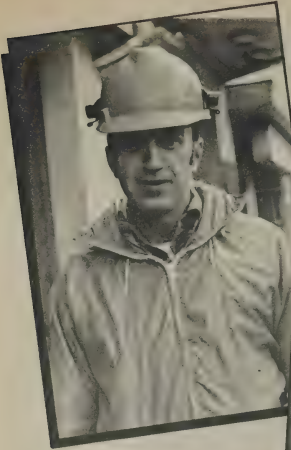
which will continue to stop across the street from Brattle. A bus starter will be on duty during the closing hours to provide assistance.

## Where to Park in Harvard Square

Map by Phil Keefe



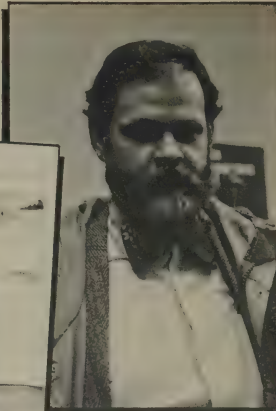
# Red Line People



Steve Walsh



Gina Caterino



Robert Turano



Ha Phan

Steve Walsh, Gina Caterino, Robert Turano and Ha Phan are part of the home team. That's the home team for the Red Line Northwest Extension project.

Walsh, Caterino, Turano and Phan are four of a large number of Cambridge and Somerville residents who are working to build the 3.2-mile extension of the Red Line from Harvard Square to Alewife Brook Parkway.

Steve Walsh, a life-long resident of Cambridge, is the resident engineer for the Davis Square to Porter Square tunnel. In that capacity, he is responsible for ensuring that the contractor performs its work consistent with the specifications and all other requirements of the contract.

A registered professional engineer in Massachusetts and New Hampshire, Walsh holds a Bachelor's Degree in environmental engineering from Tufts University. He has been working on the Red Line project since February and says he takes an extra special interest in his job because it's all taking place in his hometown.

Gina Caterino of Somerville is also working close to home. She is receptionist and secretary for Perini Corporation's two Somerville Red Line jobs--the Davis to Porter tunnel and Davis Square Station.

"It's a busy place," Gina says about the Grove Street field office, where she is secretary to about 30 supervisory and office personnel. "But I really enjoy it. I'm learning about construction and am constantly meeting people." Gina joined Perini earlier this year when the tunnel project

first got underway. She is a graduate of Medford High School and Somerville public schools.

Robert Turano, who has lived in Somerville since 1971 and in the Cambridge area for a total of 25 years, has played a major role in the designing of the Davis Square Station. He's project manager for the station architects, Goody, Clancy & Associates of Boston.

Turano has been involved in planning the station since July of 1976, having participated in the many Davis Square Task Force meetings held to receive residents' suggestions for the station design. A graduate of the Massachusetts Institute of Technology, the architect's experience includes the designing of the renovated cancer research laboratory at MIT as well as an addition to Memorial Hospital in North Conway, New Hampshire.

Ha Phan, another Cambridge resident, is working as an office engineer in the Red Line project headquarters at Day Street in Somerville. Her job is to provide assistance to the budget analyst for the Red Line Extension, a significant responsibility considering the magnitude of this project. He is involved in overseeing all financial matters for the extension, including contractor and consultant costs, as well as in-house expenses.

Originally from Vietnam, Ha has lived in this area for nine years. She is a

graduate of Babson College in Wellesley, where she earned a Masters in Business Administration in Finance. Before joining the Red Line project, Ha worked as a program analyst in the Treasurer's Office of the MBTA.

The Red Line's home team consists of dozens of persons working in a wide variety of jobs, ranging from planning to building and from typing correspondence to distributing information about the project. In addition, there are many other area residents employed by vendors, service and other type businesses, and governmental agencies (Cambridge and Somerville) that are working either directly or indirectly on the Extension.

Other architects have helped design the Red Line's tunnels and stations. David Greenhalgh of Cambridge, for example, is resident architect for Harvard Square Station project with Skidmore, Owings and Merrill, station architects. And Porter Square Station was designed by a team from Cambridge Seven Associates, Inc., including Peter Kuttner, Susan White, John Merkler, and Mark Hammer, who worked on the Porter Square project, under the direction of Cambridge resident, Paul Dietrich.

The contractors building the extension are also utilizing local talent. Cambridge residents Richard Murrell, a laborer foreman; Leslie Pierce, a carpenter's apprentice; and Arthur Hamilton, a laborer; and James

Lawson, Jr., also a laborer, are among those employed by the Perini corporation in Harvard Square. Some of Perini's Somerville workers include carpenter foreman John Sullivan, laborer Bruno Nardone, as well as Frank Pelaggio and William Best, also working as laborers.

Among area persons working for Morrison-Knudsen on the Porter Square to Harvard Square tunnel are Cambridge residents Frank Verrochi and S. McHugh, and Somerville residents H. Vacca and F. Benoit. And in Somerville, Andrew Elliott, Harrison Thomas, Thomas Dennehy, Sue Bob, Glen Mackenzie, David Nagle, Louis Rasetta, Thomas Dennehy and Charles Sapochetti are some of the area persons working for Perini on the tunnel and Davis Square Station projects. Former Rindge Tech High (Cambridge) track star Skipper Davis also is working for Perini on the Davis Square to Porter Square tunnel.

A number of area persons also are working for the MBTA in Red Line related jobs. Ed Goode, a long-time Cambridge resident, is construction inspector stationed at the Garfield Street site of the Porter to Harvard Square tunnel. George Wolfe, another Cambridge resident working as an inspector in Harvard Square; and Somerville residents Pauline Dwyer, secretary-receptionist in the MBTA's field office in Porter Square; John Kiely, office engineer in the Porter Square field office; and Karen Hardy, a secretary in the project office at 58 Day Street, are other area residents making up the Red Line Extension's home team.

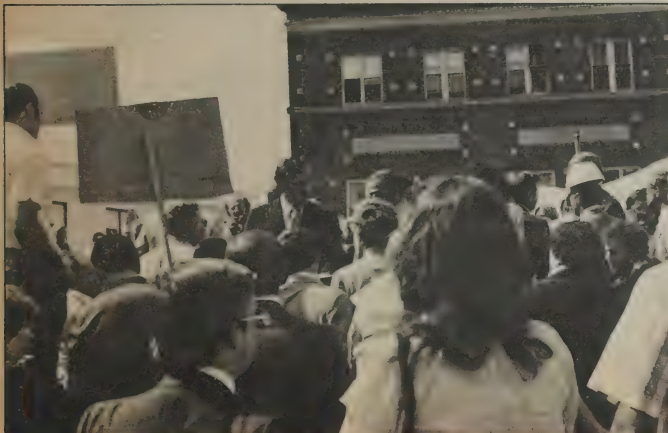




# RED LINE NEWS

Number 9 October 1979

## MBTA Breaks Ground at Davis Square



More than 200 persons joined Governor Edward J. King and MBTA Chairman and Chief Executive Officer Robert L. Foster September 13 for a ground breaking ceremony for the Davis Square Station, the second of four stations to enter the construction phase in the MBTA's Red Line Northwest Extension.

Chairman Foster pulled the lever of a front-end loader, overturning the first mound of earth for construction of the station. This followed remarks lauding the effort and cooperation of federal, state and local officials, the construction industry, and the Somerville community.

"Of all the transportation goals set in 1974, the Red Line extension has progressed the most swiftly," Mr. Foster told the gathering. "You should be proud because it is your cooperation and hard work which have made this day possible."

Governor King, Barry M. Locke, Secretary of Transportation and Construction for the Commonwealth, and Somerville Mayor Thomas F. August joined Mr. Foster in describing the Red Line Northwest project as a public transportation endeavor that will contribute to the economic growth and prosperity of the entire Boston area, as well as improve transportation services for Cambridge and Somerville residents.

Governor King noted that more than 250 construction jobs and 2,500 related jobs will be generated by the station construction. The entire Red Line will provide

employment for 3,100 construction workers and more than 30,000 related jobs.

Community participation was cited by the speakers as vital to the Red Line project, and was in evidence during the ceremony, when several residents with picket signs protested the prospects of late night construction of the Red Line Davis to Porter Square tunnel.

Mr. Foster recognized the protestors and told them the MBTA would be responsive to their concerns. "They have a message for us and we shall work with them," the chairman said.

Somerville Mayor August also addressed construction issues and emphasized that the long-term economic benefits of a Davis Square Red Line stop are well worth the inconveniences ahead.

"We're here today to say we're willing to put up with some sacrifices and make a commitment so the people who come behind will benefit," he said.

"Those communities who are not willing to make sacrifices--they'll die. We'll prosper."

Governor King, Secretary Locke and Mayor August joined Chairman Foster in breaking ground for the new station. Also donning hard-hats to overturn the ground were Francis M. Keville, Assistant Director of Construction-Northwest for the MBTA, and Joseph Perini, Vice President of Perini Corporation, Station Contractor.



And for another kind of ground breaking, see page 3.



## Notes from the Chairman



Last month's groundbreaking in Davis Square, Somerville, and the start of a full-face tunneling operation between Porter and Davis Squares signify that the construc-

tion of the Red Line Extension-Northwest is in full swing.

This is indeed an historic point in transit construction, marking as it does the culmination of years of planning, effort and cooperation among numerous individuals and agencies. This long process, which began years ago with the Boston Transportation Planning Review, is finally bearing fruit. I am extremely proud to be leading the MBTA in this exciting venture.

While the benefits of this construction are numerous and indisputable, I realize that at times in the next few years it will be somewhat of an inconvenience to you. Please be assured that the MBTA intends to continue

working with representatives of Cambridge and Somerville governments, their residents, and businesspersons to ensure that the construction is as nuisance-free as possible. You are urged to call the Red Line Development Office at 628-1845 with your questions and concerns, and they will be addressed immediately.

While we are on the subject of community participation, let me congratulate the Merchants on the Line on having reached two landmarks: first, the shoppers' parking lot on Massachusetts Avenue next to the Ground Round Restaurant has been paved, and the City of Cambridge Traffic Department will be installing meters shortly. This is something for which MOTL has worked

diligently, and I am happy that their goal is being realized.

Next MOTL is about to select a consultant to formulate a business stimulation program for the Red Line construction area (see related story below). I believe that this program is unprecedented in the transit industry. It represents an unusual coalition of business and government, and I wish to congratulate the Merchants on the Line on their progress thus far.

*R.L. Foster*

R.L. Foster  
Chairman and Chief Executive Officer

## Self-Guided Tours

Looking for a different way to spend a sunny autumn afternoon? Consider spending some time learning how to build a subway.

Construction of the MBTA's Red Line Northwest Extension has progressed to the point where you can see the subway extension taking shape at several locations along the 3.2 mile alignment. You can observe the sites closely by standing on the sidewalk in most cases, or by looking through plexi-glass windows that contractors have installed for passers-by. In addition, informational flyers explaining construction activity at each of the various sites have been prepared by the MBTA Development Office and posted at each location.

In Harvard Square, for example, you can watch and read about slurry wall construction and learn how this sophisticated technique makes excavation possible in as busy an area as Harvard Square. In Davis Square in Somerville, you can stand over the spot where a 23-foot diameter tunnel is being excavated more than 75 feet beneath ground, and learn about a 46-foot long machine that aids in the excavation. You now can walk along the Red Line Northwest alignment as you would Boston's Freedom Trail, and learn about one of the most complex and fascinating transportation construction projects in history.

Begin in Harvard Square, where "Construction Notes for Sidewalk Supers" are posted at three locations. Then walk north up Massachusetts Avenue (towards North Cambridge), stopping at construction sites at Jarvis Street, Garfield Street, and in Porter Square. From there, walk across the Porter Square Shopping



Jane Millikan of Somerville views construction through the sidewalk superintendent window in Porter Square.

Sidewalk super notes at the site of the Davis Square Station in Somerville



Center parking lot to Elm Street, Somerville. Proceed down Elm Street to Davis Square, where you can view ventilation shafts on Summer Street and the intersection of Grove Street and Highland Avenue. Then complete your tour at the intersection of Highland Avenue, Holland Street and College Avenue at the site of the Red Line Davis Square Station.

## MOTL to Select Consultant

The Merchants on the Line, the coalition of business, civic, and MBTA representatives formed last year, is in the process of selecting a marketing public relations firm to stimulate business in Red Line construction areas.

MOTL, chaired by Simon Shapiro of Tag's True-Value/Houseworks, is embarking upon their largest project thus far. After receiving the endorsement and full approval of MBTA Chairman R.L. Foster, they advertised, under the auspices of the MBTA, for a consultant to devise and implement a business stimulation and information program for the next year. More than twenty firms responded with letters of interest, and the preliminary screening was completed in late September. By mid-November, the Consultant Selection Committee expects to have reviewed all formal proposals and completed the interview process. The chosen firm will implement the first Harvard Square-Davis Square promotion in January.

This program is believed to be unique in the nation, and has been possible only because of the high level of cooperation among the merchants, the MBTA, Harvard University, and City of Cambridge representatives.

In addition to this project, MOTL has successfully lobbied for additional shoppers' parking at the Ground Round Restaurant (near Garfield Street), and is active on a number of other issues. Businesspersons who have concerns related to Red Line Construction are urged to call their representative on Merchants on the Line. Besides Mr. Shapiro, voting members include: Jim Argeros of the Harvard Coop; Frank Kramer of the Harvard Bookstores; Frank Cullen of Journeyman (Galeria Shopping Complex); Allan Elgart, Adornments and Wendy Landry, Fabrications (both on Massachusetts Avenue); Ed Murphy of Sears. Roebuck & Co.; Paul Errico of Errico Studios, and Margaret James of James, Ltd. in Davis Square.



Gathered at the Grove Street construction site during the Davis Square Sidewalk Sales are (l. to r.): Yogi Bear, Frank Stellato, Dick Floren of the Perini Corp., Smokey the Bear, Mike Prens of Thom Nahn Shoes, Dan Giargiani of the Dept. of Environmental Management/Bureau of Fire Control. The Davis Square Sidewalk Sales were sponsored in part by the MBTA and the Merchants on the Line.



# Construction Unearths Valuable Artifacts

The lines of time are being transcended in Cambridge as a result of construction of the Red Line Northwest Extension.

As the MBTA builds a subway extension that will be significant in formulating the Cambridge of the future, archaeologists are uncovering important traces of the city's past, and remnants of a mid-17th century Puritan society. They are hopeful that traces of other time periods will be found as construction of the extension continues.

The Institute for Conservation Archaeology of Harvard University's Peabody Museum, acting as a subcontractor to Red Line engineering consultant Sverdrup & Parcel and Associates, uncovered what is believed to be the backyard of a house built and occupied around 1635, when it did some exploratory excavation in preparation for the moving of Harvard's Wadsworth Gate in August.

Performing its contractual obligation of investigating potentially valuable sites before construction begins, ICA archaeologists discovered a sheep burial under about eight inches of asphalt and gravel. Further exploration resulted in the finding of two 1613 farthings, pieces of Bellermino stoneware (dated between 1650-1675), a 17th century pewter spoon, tobacco pipes, portions of jugs, earthenware mugs, green window glass (dated late 17th century), a letter seal from that period, common pins, pieces of tin-enamelled pottery (commonly known as delft) and food remains, including fish, sheep and cow bones.

The discovery of the sheep bones, believed to have been buried between 150 and 250 years ago, prompted a meeting between the Institute, Harvard University, the Massachusetts Historical Commission and the MBTA at which a scheme for uncovering the artifacts, without interfering with Red Line work, was negotiated. As a result, the archaeologists were given more than three weeks to excavate the site.

The moving of the Wadsworth Gate, performed by a contractor for Harvard, resulted in the additional discovery of a 17th Century well that appears to have been abandoned in its time and used as a trash pit.

Because the well is located on a site designated for slurry wall construction related to the new Harvard Square Station, the finding prompted another series of meetings between the Institute, the MBTA and state historical officials to decide whether the artifact should be preserved, and if so, how it should be undertaken.

At press time for this issue, a decision regarding the



Patience and skill are necessary in excavating valuable remnants of the past.

Gray Graffam

disposition of the well was under negotiation. A sample of the contents had been taken and were being analyzed to determine their value. A decision was to be made whether the well would be excavated intact or additional samples of the contents (known as coring because a long tube is inserted into the ground to extract materials) were to be taken instead.

The Wadsworth Gate site is just one of thirty-four that the Institute had identified as being potentially valuable when it researched and tested areas along the path of the Red Line Extension, under its contract with Sverdrup & Parcel. Further investigation of some of the sites has been postponed, because the testings, done when immediate plans were to extend the Red Line to Arlington Heights, included the area between Alewife Brook Parkway and that section of Arlington. (To date, the extension has

been funded as far as Alewife.) Other sites have been eliminated because research and tests show the areas have been disturbed by too much construction over the years for any significant findings to be made.

There are several sites still slated for investigation; Michael Roberts, director of the Institute, believes they may result in significant findings. An area in front of the First Church Unitarian, near Church Street (where another portion of slurry wall will be built) warrants examination. "We expect to find something there," Roberts said, but admits that he is not sure exactly what. The director says that representatives from the Institute will be "monitoring construction at this location." (Depending upon the site, archaeologists from the Institute either investigate an area ahead of construction or examine the earth as the work occurs. If

this, or any other site proves to be valuable, a plan will be negotiated for preservation so as not to delay construction.)

Another area that Roberts and his team are looking forward to examining more closely is Porter Square, where another Red Line station will be built.

Roberts says there may be remnants of an 18th century blacksmith shop and some 19th century store fronts under Porter Square. The Institute will be investigating that area in the near future before construction of the station begins. The director is hopeful that some artifacts will be uncovered despite the great amount of construction activity that has occurred in Porter Square over the years.

The Wadsworth Gate site, despite past construction and the bustling nature of

Archaeology continued on page 6.

# Construction Update

## Harvard Square Station

Slurry wall construction is the focus of Red Line activity in Harvard Square as the contractor, Perini Corporation, continues preparing for the excavation and building of the new Harvard Square Station.

Slurry walls, which are actually the underground walls of the new station, are being built in several locations, and have been completed in others. In the vicinity of Holyoke Center along Massachusetts Avenue, walls already have been installed. Walls between Dunster and Boylston Streets are in various stages of completion; as are those across Massachusetts Avenue, along the Harvard Wall, from the southern end of Flagstaff Park to the Wadsworth Gate. Scheduled for slurry wall construction during the next few months is the area between Church Street and Brigham's on the west side of Massachusetts Avenue. (For a description of how slurry walls are built, see the construction update on Davis Square Station.)



Slurry Operation at Boylston Street and Mass. Ave.; more sidewalks at far right

Meanwhile, in the Church Street area a 20-inch water main serving the City of Cambridge is being relocated, and preparations are being made to move another main—a 48-inch MDC feeder line to Boston. In both cases, these water lines are being adjusted to provide space for station construction. This work is

expected to take about two to three months.

In Flagstaff Park sub-contractors for Perini are continuing to build a "coffer dam", a large box-like area supported by steel beams and wood lagging that will allow for deep excavation. The park is being excavated to a depth of about 50 feet, to facilitate

construction of the new platforms and bus tunnels.

The ramps leading to the old tunnels are completely demolished. The contractor is punching holes in the roof of the tunnels to install traffic deck piles. These will support temporary decking for the maintenance of vehicular traffic while the demolition of the tunnel is underway. This process will require another month or two of work. Some landmarks, including the Charles Sumner Statue and a large flagpole, were removed from the park several months ago. They will be reinstalled in their original condition when construction is completed.

The contractor also is continuing to demolish sections of the existing station. A good portion of the work will be done in the early morning hours. However, some track demolition will require weekend closings of the Harvard-Brattle Station (see related story) on a temporary basis later this year.

## Harvard-Porter Tunnel

Shaft construction for the Harvard to Porter Square tunnel is progressing rapidly.

At Porter, the contractor, Morrison-Knudsen, White & Mergentime (a joint venture) is approaching the bottom of the 120-foot deep south portal access shaft. When it is reached, horizontal excavation for the tunnel to Harvard Square will begin.

Like the Davis to Porter Square tunnel excavation, a two-step process termed a "heading and bench operation" will be used until full-face tunneling is possible.

To do this, the arch or crown of the tunnel, known as the "top heading" will be blasted and cleared first. A support system will be installed to prevent rock from caving. This network supports the "top heading" during the "bottom bench" excavation which follows and will be expanded to support the full area when the "bottom bench" is cleared. This two-step process will allow the contractor to control the rock break, shaping the tunnel, until full-face excavation is underway.

The Garfield Street shaft has been excavated to the point where rock has been reached; blasting is re-

quired and has begun. Approximately 60 feet of rock must be cleared to reach the ultimate depth of a 130-foot deep shaft. The Garfield Street shaft will mark the deepest point in the Red Line Extension.

Access shafts for construction of the Harvard to Porter tunnel also are being built at the intersection of Jarvis Street and Massachusetts Avenue. Here, two shafts—for the inbound and outbound tunnels—are being sunk to a depth of about 100 feet. Earth support systems allowing for the mining of these shafts have been built. The contractor is excavating the earth in the outbound shaft, and will begin digging in the other. A gas line and sewer line also are being relocated near the Jarvis Street site.

Rock excavation is continuing for the construction of the Porter Square shaft of the Harvard Square to Porter Square tunnel. In the photo, workers adjust an air hose at the bottom of the shaft, which now is about 80 feet deep. The Porter Square shaft will be 120 feet when tunneling operations begin.



Timber lagging secured between vertical steel beams provide support for the excavation of the Garfield Street shaft. In the photo, workers are installing the lagging while a mucking machine, used to remove soft earth (clay), stands by.





## Davis-Porter Tunnel

The first full-face tunneling operation for the 3.2-mile Red Line Northwest Extension is underway beneath Grove Street, in Somerville, between Davis and Porter Squares.

A 46-foot long rock drilling machine that will be instrumental in building the Davis to Porter Square tunnel segment recently was delivered to the Grove Street construction site, and lowered into one of two 78-foot deep access shafts. The machine was put into operation almost immediately, drilling 10-foot long holes into the rock face of the inbound and outbound tunnels, enabling the placement of explosives to clear approximately 170 cubic yards of rock with each detonation.

By this week, the 23-foot diameter, inbound and outbound tunnels were extended approximately 190 feet towards Davis Square and about 300 feet towards Porter Square. From Grove Street, the tunnels are being driven on an upwards slope to Davis Square, where

they will join the Davis Square Station about 50 feet below surface. Both tunnels are being driven on a downwards slope towards Porter. They will be approximately 115 feet deep at Summer Street in Somerville, where a vent shaft is being built, and about 120 feet deep entering the Porter Square Station.

The rock drilling machine, according to representatives of the tunnel contractor Perini Corporation, is new to the U.S., although it has been widely used in foreign countries and Canada. Weighing approximately 41 tons, the "Atlas Copco Hydraulic Drill Jumbo" has three large drills that take the place of six regular air-operated drills. As a result, this machine will allow the contractor to drive the tunnels more quickly, cleanly and efficiently than if regular air-operated drills were used.

The Davis to Porter tunneling activity marks the beginning of actual tunneling operations associated with the Red Line Extension. At



Crane lowers forty-six foot long drill jumbo carefully into shaft.

Perini Corporation

other sites along the Harvard Square to Alewife Brook Parkway alignment, shafts to provide access underground for tunneling are still being constructed. The only other tunnel that has been built for the extension thus far is the 490-foot long Porter Square pilot tunnel, which was used by prospective bid-

ders for the Porter Square Station to view the rock formation under Porter Square.

Each (inbound and outbound) Davis to Porter Square tunnel will be approximately 2,770 feet long. It is expected that all excavation and concreting for this portion of the Red Line Extension will be completed by December 1980.

## Davis Square Station

The contractor for Davis Square Station, Perini Corporation, is scheduled to begin building its underground walls this week, as preparations for construction continue.

Excavation for slurry walls, which will become the permanent station walls, start in the west end of the Square, near the Somerville Theatre.

The Franki Foundation Company, working as a sub-contractor to Perini, has installed a slurry plant consisting of mixing equipment and storage tanks on College Avenue, just north of the railroad tracks. Equipment for excavating the walls also has arrived on the construction site.

For the past couple of months, Perini has been preparing for the slurry work by installing concrete, poured-in-place panels, called guidewalls, along the boundaries of the future station. Approximately 50 percent of these guidewalls have been installed; the remainder will be placed during the next few weeks.

The guidewalls are parallel and about two feet apart, and will be used to provide parameters for machinery during slurry wall excavation. Trenches, ap-

proximately 50 feet deep, will be excavated, and bentonite slurry (a mud-like substance) will be used as a temporary soil replacement until concrete displaces the slurry, keeping the trenches intact during excavation. The resulting walls will provide earth support during station construction as well as becoming its permanent structural walls.

Some utility relocation work will take place on College Avenue and Holland Street concurrent with slurry wall construction; certain utilities that needed to be moved to accommodate the station have been relocated already. This phase of preparatory work also will be completed during the next few weeks.

Slurry wall construction and additional preparation will continue for several months. Early next year, timber decking will be installed over College Avenue and Holland Street to maintain the traffic flow during excavation. Once this happens, station construction will be in full swing beneath ground, while normal day-to-day activities occur on the surface. The timber decking will be removed when underground construction is completed.



Up, Up and Away

Preparations for the construction of the Davis Square subway station began with the removal of a Boston & Maine signal tower, located in the middle of the Square. The two-story brick building that was built in 1952 and once used to regulate crossing lights and gates on College Avenue, was dismantled in a two-step process before a gathering of curious passers-by. The roof was lifted by crane after a cutting torch was used to sever the angle iron supports. Then, a backhoe demolished the brick structure.



## Gentle Handling for Harvard Gates

Steel packaging and a 125-ton crane contributed to the preservation of two Harvard University landmarks--the Lehman and Wadsworth Gates.

The gates recently were moved back 12 feet from the sidewalk along Massachusetts Avenue to provide space for slurry wall construction for the new Harvard Square Station. When station construction is completed, they will be returned to their previous location within the Harvard Wall, which was dismantled for construction. The wall will be rebuilt, using the original bricks according to restoration plans.

Moving the gates was a delicate project which required six weeks of preparation to prevent the cracking or crumbling of the stone structures. P & D Contractors of Allston performed the work under contract to Harvard University, as part of an agreement between the school and MBTA.

In order to move the 55-ton Wadsworth Gate, the contractor began by removing lights and stone urns from atop the structure. Then, a steel harness consisting of beams and angle irons was welded around the gate and under its granite foundations so the entire structure was packaged and reinforced. A 125-ton crane lifted the harnessed unit to no more than two feet off the ground at any time during the process, and moved it to its new location. The gate then was leveled and secured in place, where it will remain during construction.



Harvard Crimson

## Bids Opened for Porter Square Station

Bids for construction of Porter Square Station were scheduled to be opened publicly October 18. This represents the fifth major contract that is to be awarded for Red Line Northwest Extension construction.

Porter Square Station, one of four stations being built in conjunction with the 3.2 mile extension, will be located under the Porter Square Shopping Center and Massachusetts Avenue. The entrance will be located on the east side of Massachusetts Avenue. Cost controls imposed by the Urban Mass Transportation Administration preclude the construction of the planned west entrance at this time. However, this facet of the station will be phased in as soon as money becomes available.

The station's mezzanine will be shallow and sky-lit. When constructed, this will be the deepest station in the MBTA system. There will be a landscaped plaza area featuring street furniture, bus shelters, and numerous other physical amenities. The design engineer is Cambridge Seven Associates. Construction of Porter Square Station is expected to begin by year's end, following the award of the contract.

*Pictured at left is the Lehman Gate at Harvard University, prior to its being moved by crane to assure its protection during construction.*

## Archaeology Continued

Harvard Square, is considered by Institute archaeologists to be a rare find.

Gray Graffam, who headed the team that did the excavation, said it is highly unusual to find artifacts in their primary context in ground undisturbed by construction in an urban context, especially a location as busy as the Square.

"Building construction and utility placements have cut through the ground for the past three centuries in Boston and Cambridge. The merchant building his house in 1782 and the shopkeeper adding his extension in 1840 have all contributed to both adding and destroying part of our historic past. Today, we still add; we still destroy. Yet, archaeology is the destruction of the ground in such a way that artifacts important to understanding the past are saved."

Graffam views the artifacts found in Harvard Square as significant keys to understanding everyday life in the

Archaeologists from the Institute of Conservation Archaeology spent several weeks excavating pockets of 17th century artifacts in Harvard Square.



Gray Graffam

17th century in Cambridge. Using records, documents and archives, he is hopeful that the uncovered items will provide enough information to create a kind of photograph of what it was like in the city, once known as Newtowne, and how the average person lived.

Such a photo of 17th century life in Cambridge will be a very valuable asset, when

the city celebrates its 350th anniversary next year. According to Roberts, the Institute, the Cambridge Historical Commission, and the Cambridge Arts Council hope to join with the MBTA in putting together a major museum exhibit that will focus on the early beginnings of the City and document its growth to the present.

Roberts, who is excited



about the idea, said preliminary plans are to seek a National Endowment Association grant that will provide funds for both the exhibit and a back-to-the-roots program to be offered in schools and libraries. He is hopeful additional findings associated with Red Line construction will result in a comprehensive picture of Cambridge over 350 years.



# Harvard Square Information

## Harvard/Brattle Station to Close Weekends

The Harvard-Brattle Station will be closed on Saturday evenings and Sundays for approximately 12 weeks for demolition work required for construction of the new Harvard Square Station. The present Harvard Square Station will remain open.

The contractor will be demolishing the inbound tracks of the existing station; the safety of both the work crews and subway patrons mandates the closing of Harvard/Brattle while demolition takes place.

Although a good portion of the work will be done during early morning hours prior to the start of Red Line service it will be necessary to close the station on weekends until the work is completed. It will close on Saturday and reopen at 5 a.m. on Mondays, beginning the first weekend in November.

During these hours, all diesel buses that normally begin and end their routes at Harvard/Brattle will stop and layover at the Johnston Gate, across the street from



Photo of Harvard/Brattle Station by Steve Rosenthal

Harvard Square Station, instead a shuttle bus will be instituted to transport passengers to the Waverly and Watertown trackless trolleys,

which will continue to stop across the street from Brattle. A bus starter will be on duty during the closing hours to provide assistance.

## Where to Park in Harvard Square

Map by Phil Knefo



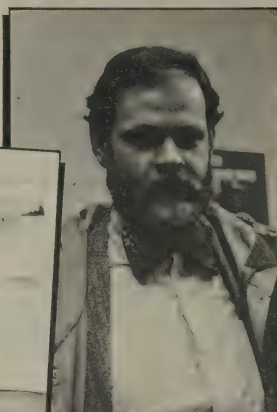
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A registered professional engineer in Massachusetts and New Hampshire, Walsh holds a Bachelor's Degree in environmental engineering from Tufts University. He has been working on the Red Line project since February and says he takes an extra special interest in his job because it's all taking place in his hometown.

Gina Caterino of Somerville is also working close to home. She is receptionist and secretary for Perini Corporation's two Somerville Red Line jobs—the Davis to Porter tunnel and Davis Square Station.

"It's a busy place," Gina says about the Grove Street field office, where she is secretary to about 30 supervisory and office personnel. "But I really enjoy it. I'm learning about construction and am constantly meeting people." Gina joined Perini earlier this year when the tunnel project

first got underway. She is a graduate of Medford High School and Somerville public schools.

Robert Turano, who has lived in Somerville since 1971 and in the Cambridge area for a total of 25 years, has played a major role in the designing of the Davis Square Station. He's project manager for the station architects, Goody, Clancy & Associates of Boston.

Turano has been involved in planning the station since July of 1976, having participated in the many Davis Square Task Force meetings held to receive residents' suggestions for the station design. A graduate of the Massachusetts Institute of Technology, the architect's experience includes the designing of the renovated cancer research laboratory at MIT as well as an addition to Memorial Hospital in North Conway, New Hampshire.

Ha Phan, another Cambridge resident, is working as an office engineer in the Red Line project headquarters at Day Street in Somerville. Her job is to provide assistance to the budget analyst for the Red Line Extension, a significant responsibility considering the magnitude of this project. Ha is involved in overseeing all financial matters for the extension, including contractor and consultant costs, as well as in-house expenses.

Originally from Vietnam, Ha has lived in this area for nine years. She is a

graduate of Babson College in Wellesley, where she earned a Masters in Business Administration in Finance. Before joining the Red Line project, Ha worked as a program analyst in the Treasurer's Office of the MBTA.

The Red Line's home team consists of dozens of persons working in a wide variety of jobs, ranging from planning to building and from typing correspondence to distributing information about the project. In addition, there are many other area residents employed by vendors, service and other type businesses, and governmental agencies (Cambridge and Somerville) that are working either directly or indirectly on the Extension.

Other architects have helped design the Red Line's tunnels and stations. David Greenhalgh of Cambridge, for example, is resident architect for Harvard Square Station project with Skidmore, Owings and Merrill, station architects. And Porter Square Station was designed by a team from Cambridge Seven Associates, Inc., including Peter Kuttner, Susan White, John Merkle, and Mark Hammer, who worked on the Porter Square project, under the direction of Cambridge resident, Paul Dietrich.

The contractors building the extension are also utilizing local talent. Cambridge residents Richard Murrell, a laborer foreman; Leslie Pierce, a carpenter's apprentice; and Arthur Hamilton, a laborer; and James

Lawson, Jr., also a laborer, are among those employed by the Perini corporation in Harvard Square. Some of Perini's Somerville workers include carpenter foreman John Sullivan, laborer Bruno Nardone, as well as Frank Pelaggio and William Best, also working as laborers.

Among area persons working for Morrison-Knudsen on the Porter Square to Harvard Square tunnel are Cambridge residents Frank Verrochi and S. McHugh, and Somerville residents H. Vacca and F. Benoit. And in Somerville, Andrew Elliott, Harrison Thomas, Thomas Denehy, Sue Bob, Glen Mackenzie, David Nagle, Louis Rasetta, Thomas Dennehy and Charles Saporgetti are some of the area persons working for Perini on the tunnel and Davis Square Station projects. Former Rindge Tech High (Cambridge) track star Skipper Davis also is working for Perini on the Davis Square to Porter Square tunnel.

A number of area persons also are working for the MBTA in Red Line related jobs. Ed Goode, a long-time Cambridge resident, is construction inspector stationed at the Garfield Street site of the Porter to Harvard Square tunnel. George Wolfe, another Cambridge resident working as an inspector in Harvard Square; and Somerville residents Pauline Dwyer, secretary-receptionist at the MBTA's field office in Porter Square; John Kiely, office engineer in the Porter Square field office; and Karen Hardy, a secretary in the project office at 58 Day Street, are other area residents making up the Red Line Extension's home team.





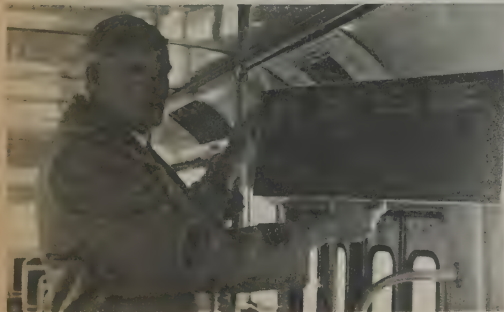
# RED LINE NEWS

Northwest Extension

Number 10

February 1980

## Red Line Art Exhibit Opens at Hayden Gallery



Cambridge and Somerville area subway, bus and trackless trolley riders are being invited to the exhibition, ARTS ON THE LINE: ART FOR PUBLIC TRANSIT SPACES, with cards such as the one William Hopewell, supervisor of the MBTA's Bennett Street area bus garage, is shown placing in a Cambridge bus. The invitation is intended for everyone interested in the MBTA's arts program for the four new Red Line Northwest stations. The exhibition, located in the Hayden Gallery of MIT, 180 Memorial Drive, Cambridge is open daily from 10 a.m. to 4 p.m., plus Wednesday evenings from 6 to 9 p.m. through March 16.

Photograph: Cambridge Arts Council

More than a thousand persons have visited the Hayden Gallery of the Massachusetts Institute of Technology (MIT) during opening week of ARTS ON THE LINE: ART FOR PUBLIC TRANSIT SPACES, an exhibition of the artwork selected for fabrication and installation in the four subway stations of the Red Line Northwest Extension.

The exhibition, scheduled to run through March 16, opened last Friday. The announcement of 20 artists selected to fabricate the artwork was made during ceremonies, highlighted by the attendance of Joan Mondale, wife of Vice President Walter F. Mondale. Mrs. Mondale, who was accompanied by Theodore Lutz, Administrator of the Urban Mass Transportation Administration (UMTA), visited the exhibition and participated in its opening in hopes of encouraging other arts in transportation programs for the future. While in Cambridge, Mrs. Mondale also presented a plaque

from President Carter to the Transportation Systems Center in observance of its 10th anniversary.

Mrs. Mondale, who initially announced the UMTA grant to form Arts On The Line in July of 1978, said she was delighted with the results of the pilot project and the selected artwork. Recognized as the Carter Administration's leading spokesperson and advocate for the arts, Mrs. Mondale praised Arts On The Line as an outstanding model for similar programs for other public transportation facilities. She also described the "cooperative venture" with the Department of Transportation as a "major development in federal support for the arts."

During the opening ceremonies, MBTA Chairman and Chief Executive Officer Robert L. Foster, who announced successful artists, described the unveiling of Arts On The Line as "a significant occasion for the MBTA and for public transit systems in general."

continued on page 7

## Porter Sq. Station Construction Begins

The joint venture of Slattery-MacLean Grove of New York, which was awarded the \$43,887,900 Porter Square station contract by the MBTA Board of Directors in December, has begun preparations for construction in the area just south of the Porter Square Shopping Center parking lot. These efforts will be accelerated during the next few weeks.

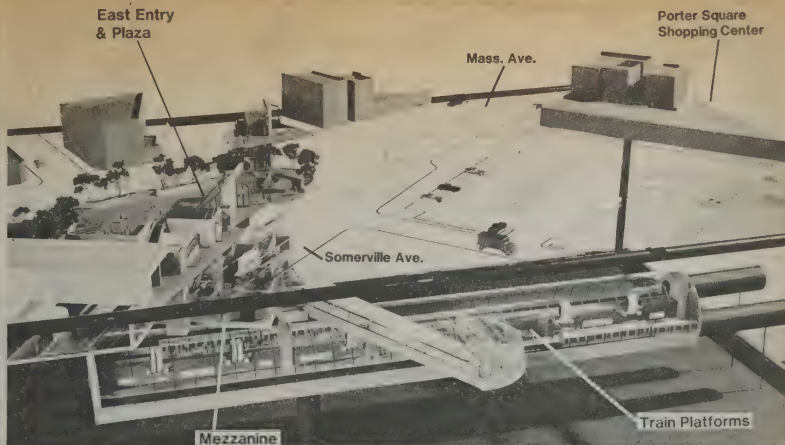
A seven-foot-high chain link fence enclosing the construction area has been erected and White Street has been closed to traffic. Some equipment, including a truck crane, compressors, and "shot-crete plant" and cement silo, also have been delivered and installed near the pilot shaft at the intersection of Somerville Avenue and White Street.

According to representatives of the contractor, work will begin inside the 85-foot deep pilot shaft, which was built last year to enable prospective bidders for the station to view geological formations under Porter Square. The shaft will be excavated to a depth of approximately 100 feet, and at the new depth, will serve as the origin point for horizontal excavation.

Porter Square Station, which will be 540 feet long by 70 feet wide and 40 feet high, will be excavated through solid rock with the use of tunneling methods. The conventional method of drilling and blasting will be used. Steel and "shot-crete," a pneumatically-applied concrete, will be used to provide rock support during excavation.

In addition to excavation of the pilot shaft, some utility relocation will be taking place in Somerville Avenue and White Street as station construction gets underway. The contractor also will be renovating the Porter Square Dodge building, which will serve as the contractor's headquarters.

Key personnel for Slattery-MacLean Grove are John Bolte, project manager for the joint



Porter Square Station will be located at the intersection of Massachusetts and Somerville Avenues. Pictured is the station model showing the landscaped plaza at the surface, the mezzanine area and escalators, and the train platforms. The station was designed by Cambridge Seven Associates, Inc. of Cambridge.

Photo by Carol Harper, Mediawrights

venture; and Gustave Fleischer, project manager for the tunneling division.

MBTA personnel assigned to Porter Square station construction are George Wey, project manager; Anthony Benedetto, assistant project manager; Jack Lane, resident engineer; Eileen Phinney, office engineer; and Jim Eng and Bill MacKay, inspectors. Jim McCarthy of the MBTA's Red Line Development Office will be working with area residents as the community liaison agent for the station project.

See other Construction Updates, pages 4 and 5



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## Red Line Artists Named

Robert L. Foster, MBTA Chairman and Chief Executive Officer, announces that the following artists have been selected to create and fabricate permanent artwork for the new Red Line Stations in Cambridge and Somerville.

Chosen for Harvard Square Station — Dimitri Hadzi, a series of granite columns to be installed on the surface pedestrian area; Gyorgy Kepes, a colored glass mural for the new bus tunnel; Joyce Kozloff, a work of glazed tiles for the passageway from the station to the bus tunnel; and Ann Norton, a brick monument for a new traffic island in Brattle Square.

Chosen for Porter Square Station — Carlos Dorrien, a granite sculpture for the station's exterior wall; Mags Harries, bronze gloves that will be scattered throughout the station's interior; David Phillips, a series of sliced granite slabs for the surface pedestrian plaza; Will Reimann, a series of carvings on bollards and a bronze turtle fountain for the pedestrian plaza; Susumu Shingu, a large windmill also for the station's plaza; and Bill Wainwright, a work composed of aluminum panels with reflectorized mylar that will hang over the station's entrance escalator.

Chosen for Davis Square Station — Belfast Bay Tileworks, a tile mural designed and made by Somerville school children that will be located on the brick wall running from the station's entrance to its mezzanine; Christopher James, a display of photographic images, colored with enamel for the walls of train platforms; James Tyler, a series of 12 cast masonry figures for the station's surface plaza; Sam Gilliam, an abstract metal sculpture for the large wall overlooking the station's train platforms; and ten poets, a collection of classical and

contemporary poetry that will be sandblasted into the brick floors of the platforms. Another artwork for the entrance at College Avenue is in the process of being selected.

And chosen for Alewife Station — Stephen Antonakos, a large neon sculpture that will run along the ceiling and walls of the station; David Davison, a large porcelain mural for the pedestrian passageway; Richard Fleischner, a work for the landscaped area outside the station; Joel Janowitz, a mural for the bus waiting platform; Bill Keyser, a series of unusual benches for the park-and-ride platform; and Nancy Webb, a series of bronze reliefs that will be scattered throughout the floors of the station.

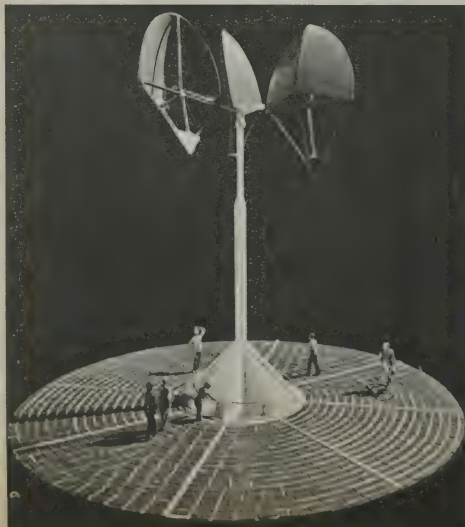
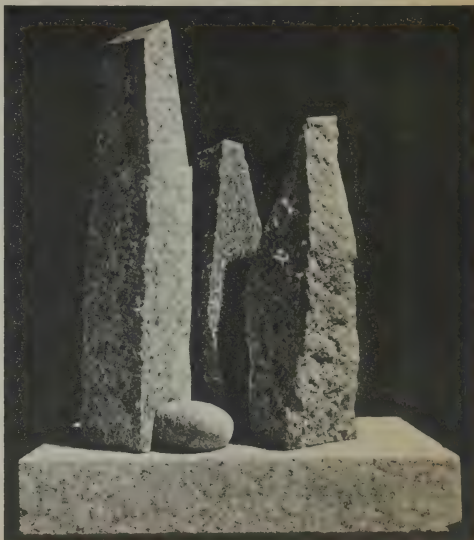
The "Red Line News" features photos and more detailed descriptions of four of these artworks, one from each of the four new stations. This is the beginning of a series of close-ups of the selected art. In subsequent issues, additional proposals and their artists will be featured.

Mr. Foster offers his congratulations to artists whose proposals have been selected, as well as his gratitude to all other artists who submitted proposals for consideration. He also offers a special note of thanks to all those who gave hours of their time and advice during their participation in the selection process.

Mr. Foster encourages all area persons, especially residents of Cambridge and Somerville, to stop by Hayden Gallery to view the exhibit.

"I know you will be as pleased as we are to see the excellent art that has been chosen for these new stations," the Chairman says. "I'm confident that it will be a source of pride for us at the MBTA, for residents of Cambridge and Somerville, and for all Red Line riders."

T



Porter Square

A 40 foot windmill that is certain to be regarded as a landmark in the future has been selected for the pedestrian plaza of Porter Square Station. Susumu Shingu, whose expertise for creating wind and water sculptures is recognized in several countries, is fabricating a large, red windmill for Porter Square. The fine of the sculpture will be activated by the wind, offering a moving and visual attraction for the station's plaza. Mr. Shingu, who is from Japan, has worked as a visiting artist at the Carpenter Center for the Visual Arts at Harvard University. Pictured is a model of his windmill which as depicted, will be situated on an interesting, circular pattern of bricks.



#### Harvard Square Station

An internationally-known Cambridge artist has been selected to build a series of tall granite columns for the pedestrian plaza outside the new Harvard Square Station. Dimitri Hadzi, who has won several awards, fellowships and grants, has created many sculptures for public places including "Thermopylae" for the John F. Kennedy Federal Building in Boston and the doors of St. Paul's Church in Rome. For his work in Harvard Square, Mr. Hadzi plans on using pieces of granite he finds locally to create a cluster of pillars of varying heights. Plans are to have water trickling down the sides of one or more of the columns, providing a water fountain for Harvard Square. The work should be a strong and noble addition to the new pedestrian plaza. Pictured is one of the artist's early sketches.

## How the Artworks Were Selected

Arts On The Line, a program of the Cambridge Arts Council, launched its effort as a pilot program in Arts in Transportation in 1978 after obtaining a \$48,000 federal grant through the MBTA, to develop an arts program for the four new Red Line Northwest Stations.

As a pilot program, those administering AOTL were faced with developing a concept into a workable program. Criteria had to be established. Proposals from artists had to be sought and collected, and a fair and professional method of selecting work for each of the stations had to be devised.

Through the efforts and advice of many individuals, the program and a procedure were formed. Nearly 400 sculptors, painters, environmental artists, craftspeople and photographers—many from the local area—responded to a nationwide search for artists interested in being considered. The responses were compiled into an artbank.

Criteria was set with several factors in mind: all work had to be appropriate (indigenous) for the design and location of each station; all had to be of the highest quality; and all had to be durable enough to withstand the heavy pedestrian traffic and activity of a subway station for at least 75 years, as well as to require no special maintenance.

To meet these goals, an Arts Committee was set up for each of the four stations. These consisted of two entities: an advisory group, made up of residents, businesspeople, city planning representatives, members of the city's historical commission, MBTA representatives and the station's architect; and the panel, consisting of artists, curators, and/or historians.

The panel was charged with selecting the art for the stations. Members participated in informational sessions, reviewed works in the artbank, and invited artists to submit proposals in order to decide which would be chosen to create the permanent artwork. Their decisions, however, were to be based on the advice and suggestions of advisory group members, whose role was to provide the panel with information about the social, environmental, historical and physical context of each station.

This basic procedure was used for all stations with the exception of Porter Square. Station architect Cambridge Seven Associates, Inc. had selected artists before Arts On The Line was formed. The arts committee for that station, however, reviewed artists' proposals and made recommendations for the works and their placement in the station.

Following are the panels and advisory group members for each station:

**For Harvard Square** — Station architect is Skidmore, Owings & Merrill of Boston. Panel members include Perry Rathbone, Cambridge resident and vice president of Christie's; Carl Belz, Director of the Rose Art Museum at Brandeis University; and Virginia Gunter, a sculptor. Advisory group members

#### Alewife Station

Wildlife of the Alewife area will provide the subject matter for a series of 100 bronze tiles that will be interspersed on the floors of Alewife Station. Nancy Webb, who lived in Cambridge for 17 years, will design her six-inch square bronze reliefs using the imagery of animals, birds, plants, and fish that are indigenous to the Alewife section of North Cambridge. This is Nancy Webb's first commission for public art, although she is recognized for her fine drawings and bronze sculptures. Her tile works will give a quality of brightness to the station's quarry tile floor. Their interspersal throughout the station also will provide a source of activity for children, i.e., a treasure hunt. Pictured are two examples of the tiles showing the type of design Nancy Webb will use.

#### Davis Square Station

Children from Somerville's Powder House Community School will design the artwork for a tile mural to be installed on the messianic wall of Davis Square Station. Jack Gregory and Joan Wye of Belfast Bay Tileworks of 80 Vernon Street in Somerville, have been selected to work with children to design and fabricate the mural, which will be composed of eight-inch square tiles. The piece should be a great source of pride for Somerville, and the children involved in the project will be able to experience the joy of having created a permanent work of art that will be appreciated for generations. Jack Gregory, who has participated in numerous individual and group exhibitions, and Joan Wye, who has fabricated public art works in Provincetown and Maine, are well known in the Somerville area for the work they produce at Belfast Bay Tileworks. Pictured are sample tiles designed by Gregory and Wye.

Photographs by: Herb Engelsberg



Great Britain's Minister of Transport, Norman Fowler, M.P., recently viewed Red Line Northwest construction sites following a luncheon, hosted by George McCarthy, New England regional representative of the U.S. Secretary of Transportation, at the federal Transportation Systems Center in Kendall Square. Following luncheon and a ride on the Red Line from Kendall to Harvard Stations, Mr. Fowler (middle, front) and his party were given a tour of the new Harvard Square Station construction sites by Garry Balboni (right, front), Ferini's project manager. With them were British Vice Consul John Schofield, Deputy Minister John Rosenfield (both pictured in background), Eugene Flanagan (left, rear), Mr. Fowler's secretary, Mr. McCarthy (far left), and Donna Garofano, who represented the MBTA. The British official concluded his visit to Boston with a meeting with MBTA Chairman and Chief Executive Officer Robert L. Foster. In addition to Boston, Mr. Fowler visited transit systems in Washington and New York before returning home.

include Chris Dame, Cambridge Community Development; Charles Sullivan, Cambridge Historical Commission; and Anne Thomas, president of the Harvard Square Business Association; and Cornelia Wheeler, a Cambridge resident.

**For Porter Square** — Station architect is Cambridge Seven Associates, Inc. of Cambridge. Panel members are Kathy Halbreich, Director of the Hayden Gallery at MIT; Bruce MacDonald, Director of the School of The Museum of Fine Arts; and Scott Schaeffer, Assistant Curator of the Museum of Fine Arts. Advisory group members are Rita O'Connor, a resident; and Ginny Greenblatt, an area businesswoman.

**For Davis Square** — Station architect is Goody, Clancy Associates of Boston. Panel members are Betsy Jones, Curator of the Smith College Art Museum; Michael Leja, Curator of the Rose Art Museum; and William Travis, sculptor. Advisory group members are Carol Dempkowski, a resident; Paul Errico, a Davis Square businessman; Isobel Cheney, a local historian; Christopher Corkery, a poet; Tom Felham, Director of Somerville's Office of Planning and Community Development; and John Matthews, also of that office. A panel of poets also participated in assisting with the selection of poetry for the station's floors.

**And for Alewife Station** — Station architect is Wallace, Floyd, Ellenzweig, Moore, Inc. Panel members are Hugh Davies, Director of the University Gallery of the University of Massachusetts; Jonathan Fairbanks, Curator of the American Decorative Arts & Sculpture of the Museum of Fine Arts; and Maud Morgan, a painter. Advisory group members are John Bohan, an area businessman, Al Wilson, also an Alewife area businessman; and Nancy Raine, a poet.

Published by:  
Massachusetts Bay Transportation Authority  
Red Line Northwest Development Office  
88 Day Street  
Somerville, Massachusetts 02144

Francis M. Keville  
Assistant Director of Construction — NW  
John Carey  
Project Manager  
(Davis Square to Alewife)

George Way  
Project Manager  
(Harvard Square to Davis Square)

Peter Lynch  
Project Manager — Northwest Development

Written by:  
Charles D. Pizzo  
Special Assistant for Public Information —  
Red Line Northwest

FOR INFORMATION, CALL:  
M-B-T-A-R-E-D or  
688-1845

## Harvard Square Station

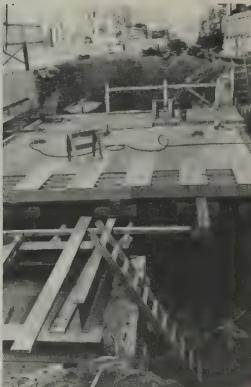
A major step in the construction of the new Harvard Square Station is being taken in front of Holyoke Center, within and under Massachusetts Avenue.

Work is underway for the construction of another temporary station, in addition to the Harvard/Brattle Station, to serve Red Line passengers while the old Harvard Square Station is demolished and a new facility is built to connect the tunnels for the Red Line Northwest Extension.

Basically, this temporary facility, to be called Harvard/Holyoke Temporary Station, will be located in the same site as the existing station. The main difference is that the temporary station's train platforms will be on the opposite side of the tracks from the existing platforms. The temporary Harvard/Holyoke station will be served by two entrances to be constructed in the Holyoke Center area. The existing kiosk entrance will be closed when the temporary station is opened late next year.

By reversing the train platforms to the south side of the tracks, the station contractor, Perini Corporation, will be able to work in the north side of the station without interfering with passenger activity. This work will include the demolition of the existing facility, as well as building the three major components of the new Harvard Square Station: new permanent train platforms, new bus tunnels and waiting areas, and a central mezzanine area, all of which will connect into the extension northwest.

Near Holyoke Street, Perini Corporation has uncovered and



The site of Holyoke Temporary Station. Photo shows the construction of the concrete form for the roof of the temporary station. When completed, the street surface will be restored and auto traffic will be directed over the area.

Photograph by Jim Miller

removed the highest level roof of the existing station and tunnels. Steel beams and columns, to support a new roof as well as to brace the existing structure, have been installed. Concrete is being poured for new roof, which is located from the "slurry wall" along the curb line of Massachusetts Avenue to about the middle of the street. Meanwhile, the contractor is continuing to install support measures to brace portions of the existing station for the demolition of the wall and roof

over the inbound track.

The wall scheduled for demolition is the one passengers face when they stand on the existing train platform. Once that is demolished, the temporary inbound and outbound platforms will be built on the other side of the tracks.

Harvard/Holyoke Temporary Station will be approximately 400 feet long. It will have two entrances will be located, one near Leavitt & Peirce, Inc. on the east end of the facility, and the other, near the Cambridge Savings Bank and Dunster Street.

During construction of the facility, auto traffic and subway service will be maintained. However, a change in subway service, made in January, will continue through March. Trains are operating on a single track between Park Street and Harvard/Brattle weekdays between 9 p.m. and 1 a.m. Only Harvard/Ashmont trains travel the entire route during these hours. Riders on trains from Quincy change to Ashmont trains at Park Street to travel to Charles, Kendall, Central, Harvard and Harvard/Brattle. Outbound, from Cambridge, Quincy passengers take Ashmont trains to Park Street and change to their Quincy trains.

In addition to work being done for the construction of Harvard/Holyoke Temporary Station, further preparations for building the new Harvard Square Station are still underway in other sections of the Square.

The Frankl Foundation Company, a subcontractor to Perini, is continuing to excavate and install, by slurry method, the underground

walls for the new station. Approximately 70 percent of the walls are completed. Frankl is also excavating and installing the subsurface walls on Massachusetts Avenue in the Church Street area just south of Flagstaff Park.

In front of stores and businesses along Massachusetts Avenue, two large water mains are being relocated to accommodate the roof and walls of the new Harvard Square station. A 48-inch main, which is an MDC feeder line to Boston, and a 20-inch Cambridge line are being moved, and will continue to be the focus of activity in that area for several weeks. Later, the slurry operation will be moved to that location for construction of the station's walls.

At the northern end of the Square, in Flagstaff Park, excavation for the construction of a "coffer dam" is being completed. The former park site has been excavated to a depth of approximately 55 feet, and is being prepared for concreting. This open excavation area, which will be the eventual location of the new station's mechanical rooms as well as the connection point to the Red Line tunnels heading north, will be concreted and then enclosed for station construction. It is called a "coffer dam" because of its box-like shape and water and earth retention qualities.

In the immediate Harvard Square area, Perini carpenters are completing the finish work on a temporary facility for Out-of-Town News. The present newsstand will be demolished for station construction by the end of February.

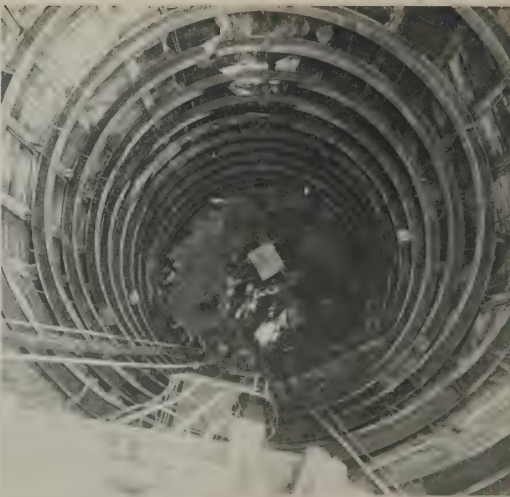
## Harvard — Porter Tunnel

Tunneling is now underway in two directions for the construction of the Harvard to Porter Square segment of the Red Line Northwest Extension.

From the bottom of a 120-foot-deep access shaft next to the Commonwealth Look Building in Porter Square, twin tunnels are being driven toward a construction site at the corner of Garfield Street and Massachusetts Avenue. From the Garfield Street shaft at that location, horizontal excavation recently began for the construction of two parallel tunnels heading toward Porter Square and Harvard Station.

The joint venture of Morrison-Knudsen, White and Mergentime recently completed excavation of the 130-foot-deep Garfield Street shaft, as well as a horizontal cross passage that provides access for workers and machinery from the shaft to a location directly under Massachusetts Avenue. As soon as the cross passage was completed, the contractor began driving the inbound tunnel north and south under Massachusetts Avenue. Meanwhile, excavation for the outbound tunnel heading north and south was initiated from inside the shaft.

Because these tunnels are deep and are being driven through rock, the conventional method of drilling and blasting is being used under a two-step process. That is, the bottom is shot first and then the top heading is drilled and shot from the muck pile. Once tunnel excavation is underway and the tunnels are



One of the vent shafts at Jarvis Street—part of the Harvard to Porter Tunnel.

Photograph by Jim Miller

shaped, the contractor will begin excavating the full height of the 23-foot-diameter tunnel face with each shot.

In the tunneling operation from

Garfield Street, a 50-foot-long drill jumbo will be used to drill 8-12-foot-long holes in the rock for the placement of explosives and rock bolts that are used to support the

rock. Equipped with six large drills, this machine is somewhat similar to a three-drill jumbo that is being used to excavate the Davis to Porter tunnel in Somerville. It has been custom-made by ElGood-Mayo for Morrison-Knudsen and will be delivered to the Garfield Street site early in February. Great skill will be required to lower a machine of such size through the shafts to the tunnels below.

From Porter Square, tunneling has been underway since mid-December. As of January 15, the inbound tunnel toward Garfield was approximately 110 feet long. The outbound tunnel was 85 feet long.

The tunnels from Garfield and Porter Square will meet at a midpoint under Massachusetts Avenue. Meanwhile, the contractor is still in the process of sinking shafts at a third location along Massachusetts Avenue, near the corner of Jarvis Street. Unlike the other two locations where one shaft was excavated for access to both the inbound and outbound tunnels, there will be two shafts, one for each tunnel, at Jarvis.

The 87-foot-deep shaft to the outbound tunnel has been excavated and decked over for automobile use. The inbound shaft is being excavated to a depth of 102 feet.

Meanwhile, utilities relocation work is continuing in the Cambridge Street area.



## Davis — Porter Tunnel



Davis to Porter Tunnel  
Photograph by David Puza, Perini Corporation

The contractor for the Davis Square to Porter Square tunnel segment is rapidly approaching the midway point of excavation.

By the end of February, the Perini Corporation will have excavated two parallel tunnels, each 1,300 feet long, or almost one-half the feet of horizontal excavation required to build the Davis to Porter Square segment of the Red Line Northwest Extension.

From twin 78-foot-deep access shafts at the corner of Grove Street and Highland Avenue, the inbound and outbound tunnels are being driven in two directions — on a downward slope to Porter Square, where the tunnels will enter the new station at a depth of about 120 feet, and on an upward slope to Davis Square, where the tunnels will connect into this new station at about 50 feet below the street.

Horizontal excavation of the tunnels began last summer. As of the publication of this edition of the "Red Line News," the inbound and outbound tunnels toward Porter are about 1,130 and 1,080 feet long respectively. The outbound tunnel has been excavated through the Summer Street shaft, which is located about 900 feet from the shafts at Grove Street. A cross passage enabling the movement of

workers and equipment between the tunnels also has been excavated from the outbound to the inbound tunnel at the Summer Street shaft location. The Summer Street shaft, about 115 feet deep, has been excavated, and temporarily covered.

In the direction of Davis Square, the inbound and outbound tunnels are each almost 200 feet long. Because these tunnels are being constructed in relatively shallow ground, the contractor is excavating through a combination of rock and soft ground. Unlike the deeper tunnels, which are being excavated through solid rock by the conventional method of drilling and blasting, the tunnels heading west are being excavated by a variety of methods. In some places, hand tools and equipment are being used, while drilling and blasting is being utilized in others. Due to the combination of earth conditions and alternative methods being used, excavation in these tunnels proceeds more slowly.

Progress in the tunnels toward Porter Square, however, has reached the point where concreting operations are scheduled to begin soon, according to representatives of Perini Corporation. Clean-up operations are underway, and the first concrete pour to begin lining the 23-foot diameter tunnels is expected to take place by the end of this month. This operation will begin in the area of the Grove Street shafts and move toward Porter Square.

It is expected that all excavation and concreting for this portion of the Red Line Extension will be completed by December of this year.

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## Davis Square and West

### Davis Square West

Three contracts for Red Line Extension work west of Davis Square are in various stages of preparation for advertising and awarding.

A contract for the demolition of five sets of buildings on the future Alewife Station site has been awarded to the Jay-Mor Wrecking Company of Pelham, N.H. Demolition work is scheduled to begin this month.

Bids for a contract for the construction of a haul road from the end of Harvey Street to Rindge Avenue Extension have been opened and taken under advisement. Work to be done under this contract includes the building of a temporary 2,200-foot-long, paved two-lane roadway along the railroad freight cut-off, as well as a connector from the haulroad to Alewife Brook Parkway. The haulroad will be used to transport materials excavated from the Davis to Alewife tunnels.

The contract for the construction of the 3,740-foot long out-and-cover tunnel between Davis Square and Harvey Street is expected to be advertised for bids later this month and a contract awarded in early summer.

T

### Davis Square Station

Slurry wall excavation is the predominant construction activity taking place in Davis Square as the Perini Corporation continues the initial stages of the construction of Davis Square Station.

The Franki Foundation Company, a subcontractor to Perini, is in the process of excavating the south side slurry wall, proceeding from the middle of Davis Square across College Avenue in an easterly direction. In addition, Franki is continuing excavation of some panels in the slurry wall along the north side of the Square.

As of February 1, about 30 percent of the slurry wall work was completed. These walls, which are actually underground concrete walls, are termed "slurry walls" because a bentonite slurry is used in their construction. As two-foot-wide trenches are excavated — to a depth of as much as 60 feet in Davis Square — slurry is pumped in, preventing the sides of the trenches from collapsing until concrete is pumped in to displace the slurry. These walls are being built around the station perimeter, and will provide support during station excavation. In all, 1,350 lineal feet of slurry wall is being constructed.

This activity, although predominant, is only one aspect of the preparatory work that is underway in order to begin construction of the 55-foot-deep facility, which will be



Slurry wall operations continue in Davis Square. Pictured is a clam-shell excavating three-foot wide, 60-foot deep trench on the west side of the Square, along the railroad right-of-way.

Photo by Perini Corporation

located along the railroad right-of-way, from just beyond the Somerville Theatre to just beyond the Middlesex Federal Savings Bank by College Avenue.

The 600-foot-long by 70-foot-

wide station also has required the relocation of several utility lines, as well as the installation of a 630-foot-long box culvert to update part of the city's existing storm drainage system.

As of publication of this edition of the "Red Line News," utility relocation work is continuing in College Avenue and Holland Street. Work also is proceeding for the installation of the east-in-place reinforced box culvert. Two storm chambers, one just west of the Somerville Theatre and the other at the east end of the site, have been completed as part of that project. The installation of another chamber, located in the middle of Holland Street, has been started and will be completed soon. At this time, the contractor is excavating the area between the two chambers for the formation of the culvert, which will be five to seven feet wide and run along the south side of the station.

It is estimated that this preparatory work will continue for the next three months. Sometime this spring, timber decking will be installed over College Avenue and Holland Street to maintain traffic during actual station excavation. This timber decking will allow the contractor to build the station underground, while normal day-to-day activities continue on the surface above. When underground construction is completed, the timber decking will be removed and the original roadways restored.

T

## Transportation Art Has Great Future ... Jennifer Dowley

If Jennifer Dowley had her way, all time spent waiting in transportation facilities or driving on the highways would be a more pleasant and comfortable experience, enhanced by art.

As Director of the Cambridge Arts Council's Arts On The Line Program, Ms. Dowley views her job as being more than administering and developing means of incorporating art into Red Line Northwest Stations. She sees her role as that of breathing life into "an idea whose time has come."

The recent shift in Department of Transportation policy that put emphasis on the humanistic quality of design of transportation facilities is, in Ms. Dowley's opinion, a very basic and serious reversal in government attitude toward public places.

"It is as if the federal government has finally given serious attention to the individual human being moving and waiting in a public space," says the director. "This new Policy Directive can be interpreted to mean that not only are transportation facilities designed to move people efficiently from one place to another, but now they will attempt to do that in a comfortable, pleasant or beautiful way."

A Theatre Arts Graduate of Denison University in Ohio who has held several administrative positions with theatre, ballet, art groups and museums, Ms. Dowley was hired by the Cambridge Arts Council to administer Arts On The Line in 1978. This happened shortly after Mrs. Joan Mondale and then Secretary of Transportation Brock Adams presented the Cambridge Arts Council, through the MBTA, a grant for \$48,000 to implement an artist selection procedure for the MBTA's Red Line Extension Northwest.

"I was hired to direct the program's efforts that had been underway a year before I started," says Ms. Dowley, citing Lowry



Cambridge Arts Council Staff Judith Dearborn, Jennifer Dowley, and Barbara Akiba.

Burgess, a Cambridge artist and member of the Council's Board of Directors; Pamela Worden, former executive director for the Council; and Ron Fleming, a former chairman of CAC's Board of Directors, as the moving forces behind the successful effort to secure the federal grant that provided the foundation for Arts On The Line. "And what we had was a pilot program to develop and implement a project that required hours of proposal writing and negotiations, as well as interviews, research and some imaginative ideas."

Working closely with Burgess, whom Ms. Dowley describes as the program's "guiding force," the director says the first few months were spent researching other public art programs' procedures and talking with artists who had done work for the MBTA or who were interested in becoming involved in

Arts On The Line.

"The thing that kept everyone's heart and soul behind the drudgery was the idea that public art might push itself into new bounds with this project," Ms. Dowley says. "From the beginning, the public art for these stations was conceived as environmental, accessible and intimate, as opposed to isolated, architectural or monumental."

Little by little, she says the pieces were worked into place; ensuring that funding for art was provided for in the budgets for each of the four stations; devising an artist selection procedure that would involve both community representatives and art professionals; soliciting for and creating an artbank containing a reference file of artists and their works; and adopting policies to assure that all aspects of the program would be administered effectively and fairly.

Again, Ms. Dowley emphasizes that several persons played important roles in bringing the program together. Among those were Molly Miller and Barbara Akiba of the Cambridge Arts Council. From the MBTA were Charles Steward, environmental coordinator, George Wey, a project manager for the Red Line Northwest; Peter Lynch, project manager for the Red Line Development Office; John Williams, project manager of Design/Development; and Sydney Rockefeller, an arts consultant.

Now that the processes have been completed and the artists selected, Ms. Dowley says it's a matter of time before the success or non-success of the program's efforts can be measured. How the public responds to the selected art, whether fabrication and installation of the works goes smoothly, how durable each piece proves to be over a period of years, and whether transit officials and the public decide in the future that the incorporation of art

into the stations was money well spent, all remains to be seen. Jennifer Dowley, however, has a great deal of faith that Arts On The Line will be successful. She's confident that the many Red Line passengers who use Harvard Square, Porter Square, Davis Square and Alewife Stations in the future will appreciate the pleasant atmosphere in their new stations.

"We may not have to approach that awesome year of 1984 with fear and trepidation about 'Big Brother' speaking to us in cavernous concrete rooms," Ms. Dowley says. "Instead, in Cambridge and Somerville, there will be art on our subway walls, ceilings and floors to remind us of the importance and beauty of the individual effort, and also the fact that the federal government cares about our transportation environment."

## Agency to Assist Red Line Merchants

The public relations firm of Agnew, Carter, McCarthy, Inc. has been selected by a consultant selection committee of the MBTA and Merchants on the Line (MOTL) to produce a promotional and public relations programs for businesses in the Red Line Northwest construction area.

The Boston firm, which has run successful campaigns for such clients as Boston 200, Summerthing, Zayre Corporation, Brands Mart and the Ice Follies, was chosen recently over six other finalists by the selection committee of MOTL following a lengthy consultant selection process. More than 20 public relations specialists had submitted proposals.

Robert L. Foster, Chairman and Chief Executive Officer of the MBTA, says the retention of Agnew, Carter, McCarthy should give Merchants on the Line the talent and resources it needs to secure and improve business for all merchants in proximity to the construction work.

His views are shared by Simon Shapiro, chairman of MOTL, which was organized in late 1978 to assist businesses along the alignment of the Red Line Northwest during construction.

"I think we have been effective in working together and resolving some of the problems we have encountered during construction thus far," says Mr. Shapiro, "but I think we will become even more effective during the coming year with professional assistance."

Merchants on the Line was successful in working with the MBTA to obtain an off-street, metered parking lot at 1718 Massachusetts Avenue near the Garfield Street Red Line construction site. This lot, which was opened to the public in October, is providing shoppers in the adjacent retail district along Mass. Ave. with 37 parking spaces.

MOTL also was successful in sponsoring its first business stimulation promotion, "Triflic Sales Days," last June. The week-long event drew thousands of shoppers into the Red Line construc-

tion area, and brought merchants, the MBTA, the Cambridge Chamber of Commerce and the Cambridge Arts Council together as a working team.

"Triflic Sales Days," however, required a great deal of planning and legwork, Mr. Shapiro says. "We found out how much is involved in running a promotion. It takes a lot of creative thinking and know-how; along with time, which most businesspeople do not have."

Mr. Shapiro says that having a professional agency working with MOTL and the MBTA will allow the merchants' group to sponsor a larger variety of promotions and events.

Agnew, Carter, McCarthy, Inc. which is negotiating a one-year contract with the MBTA, has had considerable experience producing public relations and marketing/advertising programs for a wide range of organizations including government, travel and tourism,

retailing, manufacturers, health associations, public service, real estate, recreation and entertainment and service firms.

In addition to those listed above, the agency has run successful campaigns for the Ringling Brothers and Barnum and Bailey Circus, the Busch Beer Summer Music Festival, Columbo Yogurt, Fayva Shoes, and the Muscular Dystrophy Association. Among programs worked on by the firm for the State and the City of Boston were the Governor's Highway Safety Bureau's statewide program, "Staying Alive is No Accident," the City of Boston's economic development program, and Jubilee 360, the upcoming celebrating of Boston's 360th birthday.

Voting members of MOTL who participated in the selection process in addition to Mr. Shapiro are: Jim Argersoe of the Harvard Coop; Frank Cullen of Journeyman; Allan Elgart of Adornments; Ed Murphy of Sears, Roebuck & Co. and Paul Errico of Errico Studios.



## More Than 50 Respond to Red Line Blood Drive

More than 50 persons associated with the MBTA's Red Line Northwest Extension Project recently responded to a blood drive for the benefit of an injured co-worker.

Construction employees for the MBTA and Perini Corporation's Somerville field office donated 43 units of blood when the Massachusetts General Hospital Blood Donor Mobile Unit visited the Davis Square job site to accept blood on behalf of Frank Healy. Several more persons who attempted to participate were deferred by the Unit for medical reasons.

Mr. Healy, an assistant project manager for the MBTA assigned to the Davis Square Station project, required more than 40 pints of blood when he was seriously injured during an automobile accident in the Square last Fall. He was hospitalized at Massachusetts General following his accident. Mr. Healy is reported to be recovering and doing well.

The replacement blood drive was organized by personnel in the MBTA Davis Square field office as an expression of what Mr. Healy's co-workers describe as "the comradeship that exists between workers on a large construction project." In the words of William Donovan, an inspector for the Davis Square job, "a common nerve is touched when a construction worker is injured in a job-site accident."

Persons responding to the blood drive included MBTA Red Line office employees, as well as supervisory personnel from the field office for Perini, which is building the station and the Davis Square to Porter Square tunnel. At least 50 of the respondents were first time donors with the Massachusetts General Unit. The largest group of donors, however, were those who visited the



Bob Snelders, junior inspector for Davis Square Station, was one of many who donated.

mobile unit after they stopped their equipment, dropped their tools and put their hard-hats aside.

Shirley Baron, spokesperson for the blood unit at Massachusetts General, said she was very pleased with

the turn-out and hopes to begin a series of blood drives in conjunction with the Red Line Northwest project. Already, plans are being made to have the unit visit the job site again in March.

### Red Line Exhibit continued from page 1

"I am proud that the MBTA is considered a leader in this nationwide effort to improve the human quality of our transportation facilities," Mr. Foster said. "And I'm proud that the program we have to offer is comprehensive, workable and attractive enough to serve as a model for other programs."

George McCarthy, New England representative of Transportation Secretary Neil Goldschmidt, Mrs. Edward King, wife of the Governor, and Barry M. Locke, Secretary of Transportation and Construction for the Commonwealth, also participated in opening ceremonies.

**ARTS ON THE LINE: ART FOR PUBLIC TRANSIT SPACES** features the 20 artists' proposals for the new Harvard Square, Porter Square, Davis Square and Alowis Stations. Developed and designed for the MBTA by the Cambridge Arts Council, the Arts On The Line program was funded initially with a \$45,000 grant from the Department of Transportation's Urban Mass Transportation Administration in response to a 1977 design quality statement by former Transportation Secretary Brock Adams.

When the work by the 20 artists is installed in the new Red Line Northwest Stations, the MBTA will be the first public transit system in the country to so comprehensively involve the arts permanently in its facilities. Arts On The Line already has received requests for information from numerous other major transit systems.

The exhibition, which includes models, drawings and sketches of the large variety of artworks, is open daily from 10 a.m. to 4 p.m., plus Wednesday evenings from 6 to 9 p.m. through Sunday, March 16.

## New Subway Station Construction Explained in Display Panels

A series of display panels located on the inbound platform of Harvard Square Station is teaching thousands of Red Line passengers about the use of the slurry technique in building the walls of the new Harvard Square Station.

The panels, prepared by the Cambridge Arts Council through its Arts On The Line Program, are part of an ongoing effort to inform the public of the more interesting and unusual aspects of construction of the Red Line Northwest Extension.

The display includes photographs, charts and captions that explain the nature of slurry, how the technique works, and why the slurry method is being used in Harvard Square Station construction. Photographs of the equipment, some of which was designed specifically for this project, are included, as well as photos and profiles of some of the personnel involved in building the new station.

The informational display was a joint effort of several agencies, and was done under the auspices of the MBTA, which has an agreement with the Cambridge Arts Council to develop temporary arts programs during the construction period as well as to select permanent artwork for the new Red Line Stations. Staff from Arts On The Line wrote the captions. Designers in the Cambridge Community Development



MBTA passenger looks at slurry display while waiting for his train in Harvard Square Station. Photograph by: Margot Niederland

Office provided graphics and the Perini Corporation, contractor for Harvard Square Station, installed the panels.

As stated, the slurry display is one of many projects that Arts On The Line has undertaken to satisfy public curiosity about the wondrous and challenging aspects of Red Line construction, and to use art and artists to make construction sites more interesting.

Among projects sponsored by the Program last year were: a photographic documentation of Red

Line construction by area photographer Chris Barnes, portions of which were televised on WGBH's Ten O'Clock News during December; a variety of visual events such as balloon sculptures by Harvard Square Artist-in-Residence Jeff Stetson that offered an air of festivity to the Square's shopping district; a series of Saturday roof-top concerts, staged atop the Square's Out-of-Town news stand that had shoppers gathering and clapping along on several occasions; a series of feature stories about construction by area writer David Smith that were published in local newspapers;

and two murals, one depicting a cross section of Porter Square past-and-future, and the other, an abstract painting at Garfield Street. Both provided color and interesting scenes to ordinary plywood construction barriers.

The Arts On The Line Program will be continuing many of these projects this year. Plans are also in the development stage for additional projects aimed at providing information and adding color to construction areas.

The installation of 40 floral street flags along Massachusetts Avenue in the Porter Square area is scheduled for this spring. A poetry project, which will feature poems written about construction by North Cambridge school children on car cards in Cambridge buses and trains also is planned for the spring. Exhibits of photographs and some of the archaeological findings discovered in Harvard Square are tentatively scheduled.

Arts On The Line staff will be working with the MBTA's Red Line Development Office to create graphics, take photographs, and produce displays for the Development Office's construction information program, "Construction Notes for Sidewalk Superintendents."

## A NEW FEATURE INTRODUCING RED LINE PEOPLE...

Construction of the Red Line Northwest Extension is involving hundreds of people. There are those benefitting directly from jobs with the MBTA and its contractors. Others are benefitting indirectly from jobs with the numerous materials and service vendors who are obtaining orders due to this project. In addition, many concerned Cambridge and Somerville residents and business people are involved through working closely with Red Line Northwest personnel to assure that construction goes as smoothly as possible.

We'd like you to meet some of these people. Beginning with this issue of "Red Line News," a column featuring profiles of "Red Line People" will be a regular column.

We'd like to introduce...

### MARY RAYMOND

TO MARY RAYMOND, the Red Line Northwest Extension project is providing a training ground.

A recent graduate of the University of Wisconsin — Platteville, Miss Raymond in her first job of her engineering career, is working as an assistant office engineer with Perini Corporation, contractor for the

Harvard Square Station to analyze the information she receives. "Garry's experience is really valuable to me."

Although she says she lives by the philosophical adage, "Take one day at a time," Miss Raymond expects to make a career in the transportation construction field.

"I had always worked on highways," she says. "This is my first subway project." However, she adds that it probably will not be her last, as she expects more and more public transportation projects to be built.

A native of Racine, Wisconsin, Mary says she enjoys this area and hopes to make New England her home. The only thing missing is snow, she says, because she'd like to do some cross-country skiing before winter is over.



### ARTHUR LEONE

KEEPING a 150-ton crane in top-notch working order is the job that Arthur Leone performs afternoons and evenings at the shaft construction site of the Davis to Porter Tunnel on Grove Street in Somerville.

An Arlington resident, Mr. Leone is an operator for the 4100-Manitowoc crawler crane that is instrumental in hoisting machinery, support steel and the bucket used to carry muck from tunnels into and out of two access shafts.

"This machine has to be in top working condition at all times," says Mr. Leone, who works closely with the crane operator.

"Fortunately, this is an excellent machine. We have not had any breakdown since we started using it last May."

Mr. Leone, who has been a member of Local 4 of the Operating Engineers for the 12 years, says he enjoys his job, primarily because he really likes working outdoors.

"I was previously an office worker in the sales department of a shoe firm," he says, describing how he applied and was accepted by Local 4 in hope of obtaining a job in the construction field. "I doubt I would ever go back to working in an office. I'm a real outdoors buff."

As an area resident, Mr. Leone says he is very appreciative of the benefits of having the Red Line extended.

"With the price of gas and the cost of parking facilities in downtown Boston, I think this is one of the best things that could happen for this area," he says. "The inconvenience that the local resident is experiencing now because of construction will be well worth the benefits of having the extension in the future."

"I'd love to see it come into Arlington," he says.

### SIMON SHAPIRO

SIMON SHAPIRO is frequently a voice for the merchants whose businesses are located in the path of Red Line Northwest construction.

As a founder and the chairman of Merchants on the Line (MOTL), Mr. Shapiro encourages individual merchants to request his assistance in resolving any concerns they have about construction. He also works to see that an organized effort by affected retailers approach construction positively through a program consisting of sales promotions and ongoing public relations with the community.

"I see my role as a liaison between the various business groups, the city and the MBTA," says Mr. Shapiro, whose own business, Tags True Value Hardware, is



located in the Porter Square Shopping Center, immediately adjacent to the Porter Square Station construction site. "And I see the role of Merchants on the Line as assisting the small merchant in maintaining and stimulating business during the construction period."

Merchants on the Line, in Mr. Shapiro's opinion, is achieving success and has brought about positive results that "will continue long after construction is completed."

"We (the merchants) are developing a fraternal type of relationship," he says. "We're a melting pot of merchants, who are meeting — often for the first time — and finding out that we all share the same problems and needs."

MOTL "has provided the time and place for us to get together," he says. "I think it's great."

President of Tags since 1972, Mr. Shapiro has long been involved in civic and business organizations. He is vice chairman of the Cambridge Arts Council, a member of the Cambridge Rotary, a former director of the Cambridge Chamber of Commerce, and is presently a corporate board member of the Cambridge YMCA and Mount Auburn Hospital. He is also a member of the Executive Board of the Brookline Arts Center and is currently treasurer of the Boston Area Bicycle Coalition.



### MICHAEL BRENNAN

MICHAEL BRENNAN's role in the Red Line Northwest Extension isn't always a popular one. But his is a necessary function for a project of this size.

Mr. Brennan is a right-of-way agent for the MBTA, whose duties range from negotiating for the purchase and/or lease of property in the path of the extension to relocating property owners whose homes or businesses have been taken for construction.

"I know there are people out there who would prefer never seeing me," Mr. Brennan says. "But I think I have a great deal of empathy for the residents and business people I work with, and I think many of those who have put their trust in me have done so for that reason."

A graduate of St. Anselm's College, former executive director of the Lynn Redevelopment Authority and former assistant director of a Model Cities Program, Mr. Brennan is often involved in as many as a dozen projects at a time.

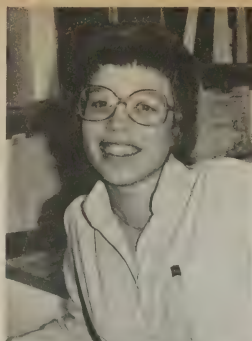
One of his tasks is to work with Somerville City Officials to find parking spaces to replace those that have been lost to construction in Davis Square.

"We secured spaces at the Ming Toy Restaurant; and another agreement with the Dobby Post will result in an additional 38 spaces for this shopping area," the right-of-way agent says. "We're continuing our efforts to find additional parking."

Mr. Brennan, who recently passed his real estate exam certifying him as a licensed real estate broker, has been working at the MBTA since December of 1977. He usually works with Walter McLeod, a senior right-of-way agent, and Gino Palmacci, manager of right-of-way.

Although people are not always eager to meet him, Mr. Brennan says he enjoys his job because he is constantly dealing with people and doing what he can to assist them with difficult but necessary changes.

"I think a person's attitude toward what they're doing and who they're working with are the most important factors," says Mr. Brennan. "Hopefully, my desire to assist is projected into the work I do."



Harvard Square Station project.

"I think it's really good experience for me," says the 22-year-old Belmont resident. "I'm learning about many different techniques, like slurry walls — techniques I've never encountered before."

Miss Raymond spends most of her time working with schedules and plans inside Perini's Harvard Square field office, although she did enjoy working on the site with the survey crew for a few days last fall.

Her most recent task is revising the overall construction schedule, to provide Perini with a comprehensive picture of the work being done so that the contract proceeds on schedule.

"I really have to know what's going on and where it's going on," Miss Raymond says, explaining that she relies on computers and Garry Balboni, Perini's project engineer for





# RED LINE NEWS

### Northwest Extension

Number 10 February 1980

DEPARTMENT

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## Red Line Art Exhibit Opens at Hayden Gallery



Cambridge and Somerville area subway, bus and trackless trolley riders are being invited to the exhibition, ARTS ON THE LINE: ART FOR PUBLIC TRANSIT SPACES, with cards such as the one William Hopewell, supervisor of the MBTA's Bennett Street area bus garage, is shown placing in a Cambridge bus. The invitation is intended for everyone interested in the MBTA's art program for the four new Red Line Northwst stations. The exhibition, located in the Hayden Gallery of MIT, 160 Memorial Drive, Cambridge is open daily from 10 a.m. to 4 p.m., plus Wednesday evenings from 6 to 9 p.m. through March 16.

Photograph: Cambridge Arts Council

More than a thousand persons have visited the Hayden Gallery of the Massachusetts Institute of Technology (MIT) during opening week of ARTS ON THE LINE: ART FOR PUBLIC TRANSIT SPACES, an exhibition of the artwork selected for fabrication and installation in the four subway stations of the Red Line Northwest Extension.

The exhibition, scheduled to run through March 16, opened last Friday. The announcement of 20 artists selected to fabricate the artwork was made during ceremonies, highlighted by the attendance of Joan Mondale, wife of Vice President Walter F. Mondale. Mrs. Mondale, who was accompanied by Theodore Lutz, Administrator of the Urban Mass Transportation Administration (UMTA), visited the exhibition and participated in its opening in hopes of encouraging other arts in transportation programs for the future. While in Cambridge, Mrs. Mondale also presented a plaque

from President Carter to the Transportation Systems Center in observance of its 10th anniversary.

Mrs. Mondale, who initially announced the UMTA grant to form Arts On The Line in July of 1978, said she was delighted with the results of the pilot project and the selected artwork. Recognized as the Carter Administration's leading spokesperson and advocate for the arts, Mrs. Mondale praised Arts On The Line as an outstanding model for similar programs for other public transportation facilities. She also described the "cooperative venture" with the Department of Transportation as a "major development in federal support for the arts."

During the opening ceremonies, MBTA Chairman and Chief Executive Officer Robert L. Foster, who announced successful artists, described the unveiling of Arts On The Line as "a significant occasion for the MBTA and for public transit systems in general.

continued on page 7

## Porter Sq. Station Construction Begins

The joint venture of Slattery-MacLean Grove of New York, which was awarded the \$43,887,900 Porter Square station contract by the MBTA Board of Directors in December, has begun preparations for construction in the area just south of the Porter Square Shopping Center parking lot. These efforts will be accelerated during the next few weeks.

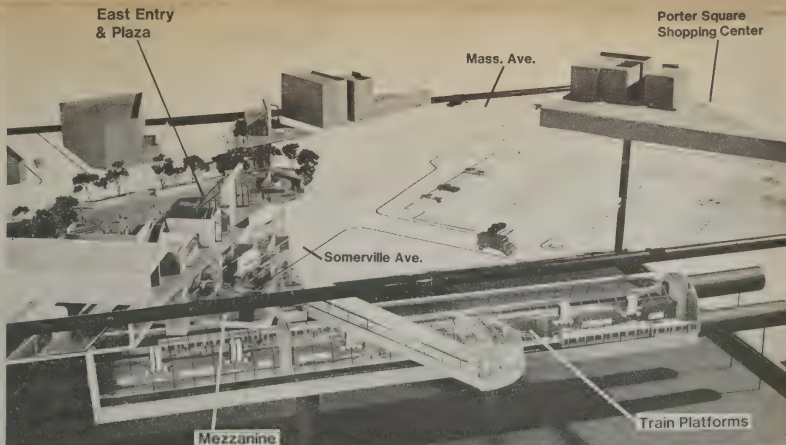
A seven-foot-high chain link fence enclosing the construction area has been erected and White Street has been closed to traffic. Some equipment, including a truck crane, compressors, and "shot-crete plant" and cement silo, also have been delivered and installed near the pilot shaft at the intersection of Somerville Avenue and White Street.

According to representatives of the contractor, work will begin inside the 85-foot deep pilot shaft, which was built last year to enable prospective bidders for the station to view geological formations under Porter Square. The shaft will be excavated to a depth of approximately 100 feet, and at its new depth, will serve as the origin point for horizontal excavation.

Porter Square Station, which will be 540 feet long by 70 feet wide and 40 feet high, will be excavated through solid rock with the use of tunneling methods. The conventional method of drilling and blasting will be used. Steel and "shotcrete," a pneumatically-applied concrete, will be used to provide rock support during excavation.

In addition to excavation of the pilot shaft, some utility relocation will be taking place in Somerville Avenue and White Street as station construction gets underway. The contractor also will be renovating the Porter Square Dodge building, which will serve as the contractor's headquarters.

- Key personnel for Slattery-MacLean Grove are John Bolte, project manager for the joint



Porter Square Station will be located at the intersection of Massachusetts and Somerville Avenues. Pictured is the station model showing the landscaped plaza at the surface, the mezzanine area and escalators, and the train platforms. The station was designed by Cambridge Seven Associates, Inc. of Cambridge.

Photo by Carol Harper. Mediawrights

venture; and Gustave Fleischer, project manager for the tunneling division.

MBTA personnel assigned to Porter Square Station construction are George Wey, project manager; Anthony Benedetto, assistant project manager; Jack Lane, resident engineer; Eileen Phinney, office engineer; and Jim Eng and Bill MacKay, inspectors. Jim McCarthy of the MBTA's Red Line Development Office will be working with area residents as the community liaison agent for the station project.

See other Construction Updates, pages 4 and 5

More about . . .

**Arts On The Line** pages 2, 3, 6 & 7

## Construction Updates pages 4 & 5

Red Line People page 8

## Red Line Artists Named

Robert L. Foster, MBTA Chairman and Chief Executive Officer, announces that the following artists have been selected to create and fabricate permanent artwork for the new Red Line Stations in Cambridge and Somerville.

**Chosen for Harvard Square Station** — Dimitri Hadzi, a series of granite columns to be installed on the surface pedestrian area; Gyorgy Kepes, a colored glass mural for the new bus tunnel; Joyce Kozloff, a work of glazed tiles for the passageway from the station to the bus tunnel; and Ann Norton, a brick monument for a new traffic island in Brattle Square.

**Chosen for Porter Square Station** — Carlos Dorrien, a granite sculpture for the station's exterior wall; Mags Harris, bronze gloves that will be scattered throughout the station's interior; David Phillips, a series of sliced granite slabs for the surface pedestrian plaza; Will Reimann, a series of carvings on bollards and a bronze turtle fountain for the pedestrian plaza; Susumu Shingu, a large windmill also for the station's plaza; and Bill Wainwright, a work composed of aluminum panels with reflectorized mylar that will hang over the station's entrance escalator.

**Chosen for Davis Square Station** — Belfast Bay Tileworks, a tile mural designed and made by Somerville school children that will be located on the brick wall running from the station's entrance to its mezzanine; Christopher James, a display of photographic images, colored with enamel for the walls of train platforms; James Tyler, a series of 12 cast masonry figures for the station's surface plaza; Sam Gilliam, an abstract metal sculpture for the large wall overlooking the station's train platforms; and ten poets, a collection of classical and

contemporary poetry that will be sandblasted into the brick floors of the platforms. Another artwork for the entrance at College Avenue is in the process of being selected.

And chosen for Alewife Station — Stephen Antonakos, a large neon sculpture that will run along the ceiling and walls of the station; David Davison, a large porcelain mural for the pedestrian passageway; Richard Fleischner, a work for the landscaped area outside the station; Joel Janowitz, a mural for the bus waiting platform; Bill Keyser, a series of unusual benches for the park-and-ride platform; and Nancy Webb, a series of bronze reliefs that will be scattered throughout the floors of the station.

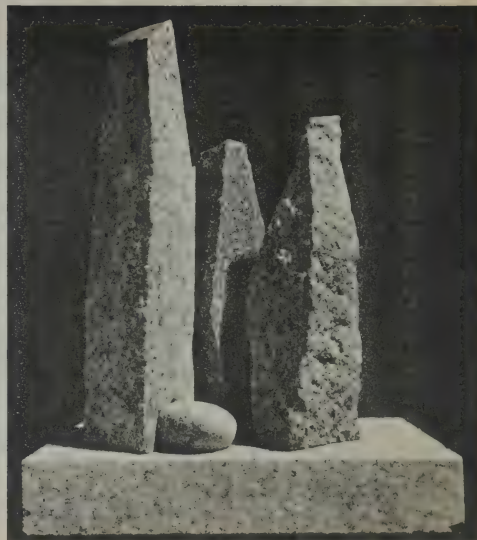
The "Red Line News" features photos and more detailed descriptions of four of these artworks, one from each of the four new stations. This is the beginning of a series of close-ups of the selected art. In subsequent issues, additional proposals and their artists will be featured.

Mr. Foster offers his congratulations to artists whose proposals have been selected, as well as his gratitude to all other artists who submitted proposals for consideration. He also offers a special note of thanks to all those who gave hours of their time and advice during their participation in the selection process.

Mr. Foster encourages all area persons, especially residents of Cambridge and Somerville, to stop by Hayden Gallery to view the exhibit.

"I know you will be as pleased as we are to see the excellent art that has been chosen for these new stations," the Chairman says. "I'm confident that it will be a source of pride for us at the MBTA, for residents of Cambridge and Somerville, and for all Red Line riders."

(T)



Porter Square

A 40 foot windmill that is certain to be regarded as a landmark in the future has been selected for the pedestrian plaza of Porter Square Station. Susumu Shingu, whose expertise for creating wind and water sculptures is recognized in several countries, is fabricating a large, red windmill for Porter Square. The fins of the sculpture will be activated by the wind, offering a moving and visual attraction for the station's plaza. Mr. Shingu, who is from Japan, has worked as a visiting artist at the Carpenter Center for the Visual Arts at Harvard University. Pictured is a model of his windmill which as depicted, will be situated on an interesting, circular pattern of bricks.



#### Harvard Square Station

An internationally-known Cambridge artist has been selected to build a series of tall granite columns for the pedestrian plaza outside the new Harvard Square Station. Dimitri Hadzi, who has won several awards, fellowships and grants, has created many sculptures for public places including "Thermopylae" for the John F. Kennedy Federal Building in Boston and the doors of St. Paul's Church in Rome. For his work in Harvard Square, Mr. Hadzi plans on using pieces of granite he finds locally to create a cluster of pillars of varying heights. Plans are to have water trickling down the sides of one or more of the columns, providing a water fountain for Harvard Square. The work should be a strong and noble addition to the new pedestrian plaza. Pictured is one of the artist's early sketches.

#### Alewlife Station

Wildlife of the Alewife area will provide the subject matter for a series of 100 bronze tiles that will be interspersed on the floors of Alewife Station. Nancy Webb, who lived in Cambridge for 17 years, will design her six-inch square bronze reliefs using the imagery of animals, birds, plants, and fish that are indigenous to the Alewife section of North Cambridge. This is Nancy Webb's first commission for public art, although she is recognized for her fine drawings and bronze sculptures. Her tile works will give a quality of brightness to the station's quarry tile floor. Their interspersed throughout the station also will provide a source of activity for children, i.e., a treasure hunt. Pictured are two examples of the tiles showing the type of design Nancy Webb will use.

#### Davis Square Station

Children from Somerville's Powder House Community School will design the artwork for a tile mural to be installed on the mezzanine wall of Davis Square Station. Jack Gregory and Joan Wye of Belfast Bay Tile works of 80 Vernon Street in Somerville, have been selected to work with children to design and fabricate the mural, which will be composed of eight-inch square tiles. The pieces should be a great source of pride for Somerville, and the children involved in the project will be able to experience the joy of having created a permanent work of art that will be appreciated for generations. Jack Gregory, who has participated in numerous individual and group exhibitions, and Joan Wye, who has fabricated public art works in Provincetown and Maine, are well known in the Somerville area for the work they produce at Belfast Bay Tileworks. Pictured are sample tiles designed by Gregory and Wye.

Photographs by: Herb Engelsberg

## How the Artworks Were Selected

Arts On The Line, a program of the Cambridge Arts Council, launched its effort as a pilot program in Arts in Transportation in 1978 after obtaining a \$46,000 federal grant through the MBTA, to develop an arts program for the four new Red Line Northwest Stations.

As a pilot program, those administering AOTL were faced with developing a concept into a workable program. Criteria had to be established. Proposals from artists had to be sought and collected, and a fair and professional method of selecting work for each of the stations had to be devised.

Through the efforts and advice of many individuals, the program and a procedure were formed. Nearly 400 sculptors, painters, environmental artists, craftspeople and photographers—many from the local area—responded to a nationwide search for artists interested in being considered. The responses were compiled into an artbank.

Criteria was set with several factors in mind: all work had to be appropriate (indigenous) for the design and location of each station; all had to be of the highest quality; and all had to be durable enough to withstand the heavy pedestrian traffic and activity of a subway station for at least 75 years, as well as to require no special maintenance.

To meet these goals, an Arts Committee was set up for each of the four stations. These consisted of two entities: an advisory group, made up of residents, businesspeople, city planning representatives, members of the city's historical commission, MBTA representatives and the station's architect; and the panel, consisting of artists, curators, and/or historians.

The panel was charged with selecting the art for the stations. Members participated in informational sessions, reviewed works in the artbank, and invited artists to submit proposals in order to decide which would be chosen to create the permanent artwork. Their decisions, however, were to be based on the advice and suggestions of advisory group members, whose role was to provide the panel with information about the social, environmental, historical and physical context of each station.

This basic procedure was used for all stations with the exception of Porter Square. Station architect Cambridge Seven Associates, Inc. had selected artists before Arts On The Line was formed. The station committee for that station, however, reviewed artists' proposals and made recommendations for the works and their placement in the station.

Following are the panels and advisory group members for each station:

For Harvard Square — Station architect is Skidmore, Owings & Merrill of Boston. Panel members include Perry Rathbone, Cambridge resident and vice president of Christie's; Carl Belz, Director of the Rose Art Museum at Brandeis University; and Virginia Gunter, a sculptor. Advisory group members



Great Britain's Minister of Transport, Norman Fowler, M.P., recently viewed Red Line Northwest construction sites following a luncheon, hosted by George McCarthy, New England regional representative of the U.S. Secretary of Transportation, at the Federal Transportation Systems Center in Kendall Square. Following luncheon and a ride on the Red Line from Kendall to Harvard Stations, Mr. Fowler (middle, front) and his party were given a tour of the new Harvard Square Station construction sites by Garry Balboni (right, front), Perini's project manager. With them were British Vice Consul John Scholefield, Deputy Minister John Rosenfield (both pictured in background), Eugene Flanagan (left, rear), Mr. Fowler's secretary, Mr. McCarthy (far left), and Donna Garofano, who represented the MBTA. The British official concluded his visit to Boston with a meeting with MBTA Chairman and Chief Executive Officer Robert L. Foster. In addition to Boston, Mr. Fowler visited transit systems in Washington and New York before returning home.

include Chris Dame, Cambridge Community Development; Charles Sullivan, Cambridge Historical Commission; and Anne Thomas, president of the Harvard Square Business Association; and Cornelia Wheeler, a Cambridge resident.

For Porter Square — Station architect is Cambridge Seven Associates, Inc. of Cambridge. Panel members are Kathy Halbreich, Director of the Hayden Gallery at MIT; Bruce MacDonald, Director of the School of The Museum of Fine Arts; and Scott Schaeffer, Assistant Curator of the Museum of Fine Arts. Advisory group members are Rita O'Connor, a resident; and Ginny Greenblatt, an area businesswoman.

For Davis Square — Station architect is Goady, Glancy Associates of Boston. Panel members are Betsy Jones, Curator of the Smith College Art Museum; Michael Leja, Curator of the Rose Art Museum; and William Travis, sculptor. Advisory group members are Carol Dempkowski, a resident; Paul Errico, a Davis Square businessman; Isobel Cheney, a local historian; Christopher Corkery, a poet; Tom Pelham, Director of Somerville's Office of Planning and Community Development; and John Matthews, also of that office. A panel of poets also participated in assisting with the selection of poetry for the station's floors.

And for Alewife Station — Station architect is Wallace, Floyd, Ellenzweig, Moore, Inc. Panel members are Hugh Davies, Director of the University Gallery of the University of Massachusetts; Jonathan Fairbanks, Curator of the American Decorative Arts & Sculpture of the Museum of Fine Arts; and Maud Morgan, a painter. Advisory group members are John Bohan, an area businessman, Al Wilson, also an Alewife area businessman; and Nancy Raine, a poet.

Published by:  
Massachusetts Bay Transportation Authority  
Red Line Northwest Development Office  
68 Bay Street,  
Somerville, Massachusetts 02144

Francis M. Keville  
Assistant Director of Construction — NW

John Carey  
Project Manager  
(Davis Square to Alewife)

George Wey  
Project Manager  
(Harvard Square to Davis Square)

Peter Lynch  
Project Manager — Northwest Development

Written by:  
Charlene D. Pizzo  
Special Assistant for Public Information —  
Red Line Northwest

FOR INFORMATION, CALL:  
M-B-T-A-R-E-D or  
628-1846

## Harvard Square Station

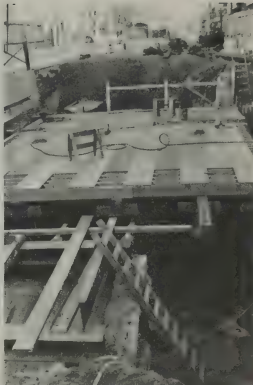
A major step in the construction of the new Harvard Square Station is being taken in front of Holyoke Center, within and under Massachusetts Avenue.

Work is underway for the construction of another temporary station, in addition to the Harvard/Brattle Station, to serve Red Line passengers while the old Harvard Square Station is demolished and a new facility is built to connect the tunnels for the Red Line Northwest Extension.

Basically, this temporary facility, to be called Harvard/Holyoke Temporary Station, will be located in the same site as the existing station. The main difference is that the temporary station's train platforms will be on the opposite side of the tracks from the existing platforms. The temporary Harvard/Holyoke Station will be served by two entrances to be constructed in the Holyoke Center area. The existing kiosk entrance will be closed when the temporary station is opened late next year.

By reversing the train platforms to the south side of the tracks, the station contractor, Perini Corporation, will be able to work in the north side of the station without interfering with passenger activity. This work will include the demolition of the existing facility, as well as building the three major components of the new Harvard Square Station: new permanent train platforms, new bus tunnels and waiting areas, and a central mezzanine area, all of which will connect into the extension northwest.

Near Holyoke Street, Perini Corporation has uncovered and



The site of Holyoke Temporary Station. Photo shows the construction of the concrete form for the roof of the temporary station. When completed, the street surface will be restored and auto traffic will be directed over the area.

Photograph by Jim Miller

removed the highest level roof of the existing station and tunnels. Steel beams and columns, to support a new roof as well as to brace the existing structure, have been installed. Concrete is being poured for new roof, which is located from the "slurry wall" along the curb line of Massachusetts Avenue to about the middle of the street. Meanwhile, the contractor is continuing to install support measures to brace portions of the existing station for the demolition of the wall and roof

over the inbound track.

The wall scheduled for demolition is the one passengers face when they stand on the existing train platform. Once that is demolished, the temporary inbound and outbound platforms will be built on the other side of the tracks.

Harvard/Holyoke Temporary Station will be approximately 400 feet long. It will have two entrances will be located, one near Leavitt & Peirce, Inc. on the east end of the facility, and the other, near the Cambridge Savings Bank and Dunster Street.

During construction of the facility, auto traffic and subway service will be maintained. However, a change in subway service, made in January, will continue through March. Trains are operating on a single track between Park Street and Harvard/Brattle weeknights between 9 p.m. and 1 a.m. Only Harvard/Ashmont trains travel the entire route during these hours. Riders on trains from Quincy change to Ashmont trains at Park Street to travel to Charles, Kendall, Central, Harvard and Harvard/Brattle. Outbound, from Cambridge, Quincy passengers take Ashmont trains to Park Street and change to their Quincy trains.

In addition to work being done for the construction of Harvard/Holyoke Temporary Station, further preparations for building the new Harvard Square Station are still underway in other sections of the Square.

The Frankl Foundation Company, a subcontractor to Perini, is continuing to excavate and install, by slurry method, the underground

walls for the new station. Approximately 70 percent of the walls are completed. Frankl is also excavating and installing the subsurface walls on Massachusetts Avenue in the Church Street area just south of Flagstaff Park.

In front of stores and businesses along Massachusetts Avenue, two large water mains are being relocated to accommodate the roof and walls of the new Harvard Square station. A 48-inch main, which is an MDC feeder line to Boston, and a 20-inch Cambridge line are being moved, and will continue to be the focus of activity in that area for several weeks. Later, the slurry operation will be moved to that location for construction of the station's walls.

At the northern end of the Square, in Flagstaff Park, excavation for the construction of a "coffer dam" is being completed. The former park site has been excavated to a depth of approximately 55 feet, and is being prepared for concreting. This open excavation area, which will be the eventual location of the new station's mechanical rooms as well as the connection point to the Red Line tunnels heading north, will be concreted and then enclosed for station construction. It is called a "coffer dam" because of its box-like shape and water and earth retention qualities.

In the immediate Harvard Square area, Perini carpenters are completing the finish work on a temporary facility for Out-of-Town News. The present newsstand will be demolished for station construction by the end of February.

(T)

## Harvard — Porter Tunnel

Tunneling is now underway in two directions for the construction of the Harvard to Porter Square segment of the Red Line Northwest Extension.

From the bottom of a 120-foot-deep access shaft next to the Commonwealth Look Building in Porter Square, twin tunnels are being driven toward a construction site at the corner of Garfield Street and Massachusetts Avenue. From the Garfield Street shaft at that location, horizontal excavation recently began for the construction of two parallel tunnels heading toward Porter Square and Harvard Station. The joint venture of Morrison-Knudsen, White and Mengertine recently completed excavation of the 130-foot-deep Garfield Street shaft, as well as a horizontal cross passage, that provides access for workers and machinery from the shaft to a location directly under Massachusetts Avenue. As soon as the cross passage was completed, the contractor began driving the inbound tunnel north and south under Massachusetts Avenue. Meanwhile, excavation for the outbound tunnel heading north and south was initiated from inside the shaft.

Because these tunnels are deep and are being driven through rock, the conventional method of drilling and blasting is being used under a two-step process. That is, the bottom is shot first and then the top heading is drilled and shot from the muck pile. Once tunnel excavation is underway and the tunnels are



One of the vent shafts at Jarvis Street— part of the Harvard to Porter Tunnel. Photograph by Jim Miller

shaped, the contractor will begin excavating the full height of the 23-foot diameter tunnel face with each shot.

In the tunneling operation from

Garfield Street, a 60-foot-long drill jumbo will be used to drill 8-12-foot-long holes in the rock for the placement of explosives and rock bolts that are used to support the

rock. Equipped with six large drills, this machine is somewhat similar to a three-drill jumbo that is being used to excavate the Davis to Porter tunnel in Somerville. It has been custom-made by ElGood-Mayo for Morrison-Knudsen and will be delivered to the Garfield Street site early in February. Great skill will be required to lower a machine of such size through the shafts to the tunnels below.

From Porter Square, tunneling has been underway since mid-December. As of January 15, the inbound tunnel toward Garfield was approximately 110 feet long. The outbound tunnel was 85 feet long.

The tunnels from Garfield and Porter Square will meet at a midpoint under Massachusetts Avenue. Meanwhile, the contractor is still in the process of sinking shafts at a third location along Massachusetts Avenue, near the corner of Jarvis Street. Unlike the other two locations where one shaft was excavated for access to both the inbound and outbound tunnels, there will be two shafts, one for each tunnel, at Jarvis.

The 87-foot-deep shaft to the outbound tunnel has been excavated and decked over for automobile use. The inbound shaft is being excavated to a depth of 102 feet.

Meanwhile, utilities relocation work is continuing in the Cambridge Street area.

(T)



## Davis — Porter Tunnel



Davis to Porter Tunnel  
Photograph by David Puzs, Perini Corporation

The contractor for the Davis Square to Porter Square tunnel segment is rapidly approaching the midway point of excavation.

By the end of February, the Perini Corporation will have excavated two parallel tunnels, each 1,300 feet long, or almost one-half the feet of horizontal excavation required to build the Davis to Porter Square segment of the Red Line Northwest Extension.

From twin 78-foot-deep access shafts at the corner of Grove Street and Highland Avenue, the inbound and outbound tunnels are being driven in two directions — on a downward slope to Porter Square, where the tunnels will enter the new station at a depth of about 120 feet, and on an upward slope to Davis Square, where the tunnels will connect into this new station at about 60 feet below the street.

Horizontal excavation of the tunnels began last summer. As of the publication of this edition of the "Red Line News," the inbound and outbound tunnels toward Porter are about 1,130 and 1,080 feet long respectively. The outbound tunnel has been excavated through the Summer Street shaft, which is located about 900 feet from the shafts at Grove Street. A cross passage enabling the movement of

workers and equipment between the tunnels also has been excavated from the outbound to the inbound tunnel at the Summer Street shaft location. The Summer Street shaft, about 115 feet deep, has been excavated, and temporarily covered.

In the direction of Davis Square, the inbound and outbound tunnels are each almost 200 feet long. Because these tunnels are being constructed in relatively shallow ground, the contractor is excavating through a combination of rock and soft ground. Unlike the deeper tunnels, which are being excavated through solid rock by the conventional method of drilling and blasting, the tunnels heading west are being excavated by a variety of methods. In some places, hand tools and equipment are being used, while drilling and blasting is being utilized in others. Due to the combination of earth conditions and alternative methods being used, excavation in these tunnels proceeds more slowly.

Progress in the tunnels toward Porter Square, however, has reached the point where concreting operations are scheduled to begin soon, according to representatives of Perini Corporation. Clean-up operations are underway, and the first concrete pour to begin lining the 23-foot diameter tunnels is expected to take place by the end of this month. This operation will begin in the area of the Grove Street shafts and move toward Porter Square.

It is expected that all excavation and concreting for this portion of the Red Line Extension will be completed by December of this year.

T

## Davis Square and West

### Davis Square West

Three contracts for Red Line Extension work west of Davis Square are in various stages of preparation for advertising and awarding.

A contract for the demolition of five sets of buildings on the future Alewife Station site has been awarded to the Jay-Mor Wrecking Company of Pelham, N.H. Demolition work is scheduled to begin this month.

Bids for a contract for the construction of a haul road from the end of Harvey Street to Rindge Avenue Extension have been opened and taken under advisement. Work to be done under this contract includes the building of a temporary 2,200-foot-long, paved two-lane roadway along the railroad freight cut-off, as well as a connector from the haulroad to Alewife Brook Parkway. The haulroad will be used to transport materials excavated from the Davis to Alewife tunnels.

The contract for the construction of the 3,740-foot long cut-and-cover tunnel between Davis Square and Harvey Street is expected to be advertised for bids later this month and a contract awarded in early summer.

T

### Davis Square Station

Slurry wall excavation is the predominant construction activity taking place in Davis Square as the Perini Corporation continues the initial stages of the construction of Davis Square Station.

The Frankl Foundation Company, a subcontractor to Perini, is in the process of excavating the south side slurry wall, proceeding from the middle of Davis Square across College Avenue in an easterly direction. In addition, Frankl is continuing excavation of some panels in the slurry wall along the north side of the Square.

As of February 1, about 30 percent of the slurry wall work was completed. These walls, which are actually underground concrete walls, are termed "slurry walls" because a bentonite slurry is used in their construction. As two-foot-wide trenches are excavated — to a depth of as much as 60 feet in Davis Square — slurry is pumped in, preventing the sides of the trenches from collapsing until concrete is pumped in to displace the slurry.

These walls are being built around the station perimeter, and will provide support during station excavation. In all, 1,350 lineal feet of slurry wall is being constructed.

This activity, although predominant, is only one aspect of the preparatory work that is underway in order to begin construction of the 55-foot-deep facility, which will be



Slurry wall operations continue in Davis Square. Pictured is a clam-shell excavating three-foot wide, 60-foot deep trench on the west side of the Square, along the railroad right-of-way.

Photo by Perini Corporation

located along the railroad right-of-way, from just beyond the Somerville Theatre to just beyond the Middlesex Federal Savings Bank by College Avenue.

The 600-foot-long by 70-foot-

wide station also has required the relocation of several utility lines, as well as the installation of a 630-foot-long box culvert to update part of the city's existing storm drainage system.

As of publication of this edition of the "Red Line News," utility relocation work is continuing in College Avenue and Holland Street. Work also is proceeding for the installation of the cast-in-place reinforced box culvert. Two storm chambers, one just west of the Somerville Theatre and the other at the east end of the site, have been completed as part of that project. The installation of another chamber, located in the middle of Holland Street, has been started and will be completed soon. At this time, the contractor is excavating the area between the two chambers for the formation of the culvert, which will be five to seven feet wide and run along the south side of the station.

It is estimated that this preparatory work will continue for the next three months. Sometime this spring, timber decking will be installed over College Avenue and Holland Street to maintain traffic during actual station excavation. This timber decking will allow the contractor to build the station underground, while normal day-to-day activities continue on the surface above. When underground construction is completed, the timber decking will be removed and the original roadways restored.

T

## Transportation Art Has Great Future ... Jennifer Dowley

If Jennifer Dowley had her way, all time spent waiting in transportation facilities or driving on the highways would be a more pleasant and comfortable experience, enhanced by art.

As Director of the Cambridge Arts Council's Arts On The Line Program, Ms. Dowley views her job as being more than administering and developing means of incorporating art into Red Line Northwest Stations: She sees her role as that of breathing life into "an idea whose time has come."

The recent shift in Department of Transportation policy that put emphasis on the humanistic quality of design of transportation facilities is, in Ms. Dowley's opinion, a very basic and serious reversal in government attitude toward public places.

"It is as if the federal government has finally given serious attention to the individual human being moving and waiting in a public space," says the director. "This new Policy Directive can be interpreted to mean that not only are transportation facilities designed to move people efficiently from one place to another, but now they will attempt to do that in a comfortable, pleasant or beautiful way."

A Theatre Arts Graduate of Denison University in Ohio who has held several administrative positions with theatre, ballet, art groups and museums, Ms. Dowley was hired by the Cambridge Arts Council to administer Arts On The Line in 1978. This happened shortly after Mrs. Joan Mondale and then Secretary of Transportation Brock Adams presented the Cambridge Arts Council, through the MBTA, a grant for \$45,000 to implement an artist selection procedure for the MBTA's Red Line Extension Northwest.

"I was hired to direct the program's efforts that had been underway a year before I started," says Ms. Dowley, citing Lowry



Cambridge Arts Council Staff Judith Dearborn, Jennifer Dowley, and Barbara Akiba.

Burgess, a Cambridge artist and member of the Council's Board of Directors; Pamela Worden, former executive director for the Council; and Ron Fleming, a former chairman of CAC's Board of Directors, as the moving forces behind the successful effort to secure the federal grant that provided the foundation for Arts On The Line. "And what we had was a pilot program to develop and implement a project that required hours of proposal writing and negotiations, as well as interviews, research and some imaginative ideas."

Working closely with Burgess, whom Ms. Dowley describes as the program's "guiding force," the director says the first few months were spent researching other public art programs' procedures and talking with artists who had done work for the MBTA or who were interested in becoming involved in

Arts On The Line.

"The thing that kept everyone's heart and soul behind the drudgery was the idea that public art might push itself into new bounds with this project," Ms. Dowley says. "From the beginning, the public art for these stations was conceived as environmental, accessible and intimate, as opposed to isolated, architectural or monumental."

Little by little, she says the pieces were worked into place; ensuring that funding for art was provided for in the budgets for each of the four stations; devising an artist selection procedure that would involve both community representatives and art professionals; soliciting for and creating an artbank containing a reference file of artists and their works; and adopting policies to assure that all aspects of the program would be administered effectively and fairly.

Again, Ms. Dowley emphasizes that several persons played important roles in bringing the program together. Among those were Molly Miller and Barbara Akiba of the Cambridge Arts Council. From the MBTA were Charles Steward, environmental coordinator; George Way, a project manager for the Red Line Northwest; Peter Lynch, project manager for the Red Line Development Office; John Williams, project manager of Design/Development; and Sydney Rockefeller, an arts consultant.

Now that the processes have been completed and the artists selected, Ms. Dowley says it's a matter of time before the success or non-success of the program's efforts can be measured. How the public responds to the selected art, whether fabrication and installation of the works goes smoothly, how durable each piece proves to be over a period of years, and whether transit officials and the public decide in the future that the incorporation of art into the stations was money well spent, all remains to be seen.

Jennifer Dowley, however, has a great deal of faith that Arts On The Line will be successful. She's confident that the many Red Line passengers who use Harvard Square, Porter Square, Davis Square and Alewife Stations in the future will appreciate the pleasant atmosphere in their new stations.

"We may not have to approach that awesome year of 1984 with fear and trepidation about 'Big Brother' speaking to us in cavernous concrete rooms," Ms. Dowley says. "Instead, in Cambridge and Somerville, there will be art on our subway walls, ceilings and floors to remind us of the importance and beauty of the individual effort, and also the fact that the federal government cares about our transportation environment."

## Agency to Assist Red Line Merchants

The public relations firm of Agnew, Carter, McCarthy, Inc. has been selected by a consultant selection committee of the MBTA and Merchants on the Line (MOTL) to produce a promotional and public relations programs for businesses in the Red Line Northwest construction area.

The Boston firm, which has run successful campaigns for such clients as Boston 200, Summerthing, Zayre Corporation, Brands Mart and the Ice Follies, was chosen recently over six other finalists by the selection committee of MOTL following a lengthy consultant selection process. More than 20 public relations specialists had submitted proposals.

Robert L. Foster, Chairman and Chief Executive Officer of the MBTA, says the retention of Agnew, Carter, McCarthy should give Merchants on the Line the talent and resources it needs to secure and improve business for all merchants in proximity to the construction work.

His views are shared by Simon Shapiro, chairman of MOTL, which was organized in late 1979 to assist businesses along the alignment of the Red Line Northwest during construction.

"I think we have been effective in working together and resolving some of the problems we have encountered during construction thus far," says Mr. Shapiro, "but I think we will become even more effective during the coming year with professional assistance."

Merchants on the Line was successful in working with the MBTA to obtain an off-street, metered parking lot at 1718 Massachusetts Avenue near the Garfield Street Red Line construction site. This lot, which was opened to the public in October, is providing shoppers in the adjacent retail district along Mass. Ave. with 37 parking spaces.

MOTL also was successful in sponsoring its first business stimulation promotion, "Triffic Sales Days," last June. The week-long event drew thousands of shoppers into the Red Line construc-

tion area, and brought merchants, the MBTA, the Cambridge Chamber of Commerce and the Cambridge Arts Council together as a working team.

"Triffic Sales Days," however, required a great deal of planning and legwork, Mr. Shapiro says. "We found out how much is involved in running a promotion. It takes a lot of creative thinking and know-how; along with time, which most businesspeople do not have."

Mr. Shapiro says that having a professional agency working with MOTL and the MBTA will allow the merchants' group to sponsor a larger variety of promotions and events.

Agnew, Carter, McCarthy, Inc. which is negotiating a one-year contract with the MBTA, has had considerable experience producing public relations and marketing/advertising programs for a wide range of organizations including government, travel and tourism,

retailing, manufacturers, health associations, public service, real estate, recreation and entertainment and service firms.

In addition to those listed above, the agency has run successful campaigns for the Ringling Brothers and Barnum and Bally Circus, the Busch Beer Summer Music Festival, Columbo Yogurt, Fayva Shoes, and the Muscular Dystrophy Association. Among programs worked on by the firm for the State and the City of Boston were the Governor's Highway Safety Bureau's statewide program, "Staying Alive is No Accident," the City of Boston's economic development program, and Jubilee 350, the upcoming celebrating of Boston's 350th birthday.

Voting members of MOTL, who participated in the selection process in addition to Mr. Shapiro are: Jim Argersos of the Harvard Coop; Frank Cullen of Journeyman; Allan Eilgart of Adornments; Ed Murphy of Beards, Roebuck & Co. and Paul Errico of Errico Studios.



# More Than 50 Respond to Red Line Blood Drive

More than 50 persons associated with the MBTA's Red Line Northwest Extension Project recently responded to a blood drive for the benefit of an injured co-worker.

Construction employees for the MBTA and Perini Corporation's Somerville field office donated 43 units of blood when the Massachusetts General Hospital Blood Donor Mobile Unit visited the Davis Square job site to accept blood on behalf of Frank Healy. Several more persons who attempted to participate were deferred by the Unit for medical reasons.

Mr. Healy, an assistant project manager for the MBTA assigned to the Davis Square Station project, required more than 40 pints of blood when he was seriously injured during an automobile accident in the Square last Fall. He was hospitalized at Massachusetts General following his accident. Mr. Healy is reported to be recovering and doing well.

The replacement blood drive was organized by personnel in the MBTA Davis Square field office as an expression of what Mr. Healy's co-workers describe as "the comradeship that exists between workers on a large construction project." In the words of William Donovan, an inspector for the Davis Square job, "a common nerve is touched when a construction worker is injured in a job-site accident."

Persons responding to the blood drive included MBTA Red Line office employees, as well as supervisory personnel from the field office for Perini, which is building the station and the Davis Square to Porter Square tunnel. At least 30 of the respondents were first time donors with the Massachusetts General Unit. The largest group of donors, however, were those who visited the



Bob Shelders, junior inspector for Davis Square Station, was one of many who donated.

mobile unit after they stopped their equipment, dropped their tools and put their hard-hats aside.

Shirley Baron, spokesperson for the blood unit at Massachusetts General, said she was very pleased with

the turn-out and hopes to begin a series of blood drives in conjunction with the Red Line Northwest project. Already, plans are being made to have the unit visit the job site again in March.

Red Line Exhibit  
continued from page 1

"I am proud that the MBTA is considered a leader in this nationwide effort to improve the human quality of our transportation facilities," Mr. Foster said. "And I'm proud that the program we have to offer is comprehensive, workable and attractive enough to serve as a model for other programs."

George McCarthy, New England representative of Transportation Secretary Neil Goldschmidt, Mrs. Edward King, wife of the Governor, and Barry M. Locke, Secretary of Transportation and Construction for the Commonwealth, also participated in opening ceremonies.

**ARTS ON THE LINE: ART FOR PUBLIC TRANSIT SPACES** features the 20 artists' proposals for the new Harvard Square, Porter Square, Davis Square and Alewife Stations. Developed and designed for the MBTA by the Cambridge Arts Council, the Arts On The Line program was funded initially with a \$48,000 grant from the Department of Transportation's Urban Mass Transportation Administration in response to a 1977 design quality statement by former Transportation Secretary Brook Adams.

When the work by the 20 artists is installed in the new Red Line Northwest Stations, the MBTA will be the first public transit system in the country to so comprehensively involve the arts permanently in its facilities. Arts On The Line already has received requests for information from numerous other major transit systems.

The exhibition, which includes models, drawings and sketches of the large variety of artworks, is open daily from 10 a.m. to 4 p.m., plus Wednesday evenings from 6 to 9 p.m. through Sunday, March 18.

# New Subway Station Construction Explained in Display Panels

A series of display panels located on the inbound platform of Harvard Square Station is teaching thousands of Red Line passengers about the use of the slurry technique in building the walls of the new Harvard Square Station.

The panels, prepared by the Cambridge Arts Council through its Arts On The Line Program, are part of an ongoing effort to inform the public of the more interesting and unusual aspects of construction of the Red Line Northwest Extension.

The display includes photographs, charts and captions that explain the nature of slurry, how the technique works, and why the slurry method is being used in Harvard Square Station construction. Photographs of the equipment, some of which was designed specifically for this project, are included, as well as photos and profiles of some of the personnel involved in building the new station.

The informational display was a joint effort of several agencies, and was done under the auspices of the MBTA, which has an agreement with the Cambridge Arts Council to develop temporary arts programs during the construction period as well as to select permanent artwork for the new Red Line Stations. Staff from Arts On The Line wrote the captions. Designers in the Cambridge Community Development



MBTA passenger looks at slurry display while waiting for his train in Harvard Square Station. Photograph by: Margot Niederland

Office provided graphics and the Perini Corporation, contractor for Harvard Square Station, installed the panels.

As stated, the slurry display is one of many projects that Arts On The Line has undertaken to satisfy public curiosity about the wonderful and challenging aspects of Red Line construction, and to use art and artists to make construction sites more interesting.

Among projects sponsored by the Program last year were: a photographic documentation of Red

Line construction by area photographer Chris Barnes, portions of which were televised on WGBH's Ten O'Clock News during December; a variety of visual events such as balloon sculptures by Harvard Square Artist-in-Residence Jeff Stelson that offered an air of festivity to the Square's shopping district; a series of Saturday roof-top concerts, staged atop the Square's Out-of-Town news stand that had shoppers gathering and clapping along on several occasions; a series of feature stories about construction by area writer David Smith that were published in local newspapers;

and two murals, one depicting a cross section of Porter Square past-and-future, and the other, an abstract painting at Garfield Street. Both provided color and interesting scenes to ordinary plywood construction barriers.

The Arts On The Line Program will be continuing many of these projects this year. Plans are also in the development stage for additional projects aimed at providing information and adding color to construction areas.

The installation of 40 floral street flags along Massachusetts Avenue in the Porter Square area is scheduled for this spring. A poetry project, which will feature poems written about construction by North Cambridge school children on car cards in Cambridge buses and trains also is planned for the spring. Exhibits of photographs and some of the archaeological findings discovered in Harvard Square are tentatively scheduled.

Arts On The Line staff will be working with the MBTA's Red Line Development Office to create graphics, take photographs, and produce displays for the Development Office's construction information program, "Construction Notes for Sidewalk Superintendents."

## A NEW FEATURE INTRODUCING RED LINE PEOPLE...

Construction of the Red Line Northwest Extension is involving hundreds of people. There are those benefitting directly from jobs with the MBTA and its contractors. Others are benefitting indirectly from jobs with the numerous materials and service vendors who are obtaining orders due to this project. In addition, many concerned Cambridge and Somerville residents and business people are involved through working closely with Red Line Northwest personnel to assure that construction goes as smoothly as possible.

We'd like you to meet some of these people. Beginning with this issue of "Red Line News," a column featuring profiles of "Red Line People" will be a regular column.

We'd like to introduce...

### MARY RAYMOND

TO MARY RAYMOND, the Red Line Northwest Extension project is providing a training ground.

A recent graduate of the University of Wisconsin — Platteville, Miss Raymond in her first job of her engineering career, is working as an assistant office engineer with Perini Corporation, contractor for the

Harvard Square Station to analyze the information she receives "Garry's experience is really valuable to me."

Although she says she lives by the philosophical adage, "take one day at a time," Miss Raymond expects to make a career in the transportation construction field.

"I had always worked on highways," she says. "This is my first subway project." However, she adds that it probably will not be her last, as she expects more and more public transportation projects to be built.

A native of Racine, Wisconsin, Mary says she enjoys this area and hopes to make New England her home. The only thing missing is snow, she says, because she'd like to do some cross-country skiing before winter is over.



### ARTHUR LEONE

KEEPING a 160-ton crane in top-notch working order is the job that Arthur Leone performs afternoons and evenings at the shaft construction site of the Davis to Porter Tunnel on Grove Street in Somerville.

An Arlington resident, Mr. Leone is an older for the 4100-Manitowoc crawler crane that is instrumental in hoisting machinery, support steel and the bucket used to carry muck from tunnels into and out of two access shafts.

"This machine has to be in top working condition at all times," says Mr. Leone, who works closely with the crane operator.

"Fortunately, this is an excellent machine. We have not had any breakdown since we started using it last May."

Mr. Leone, who has been a member of Local 4 of the Operating Engineers for the 12 years, says he enjoys his job, primarily because he really likes working outdoors.

"I was previously an office worker in the sales department of a shoe firm," he says, describing how he applied and was accepted by Local 4 in hope of obtaining a job in the construction field. "I doubt I would ever go back to working in an office. I'm a real outdoors buff."

As an area resident, Mr. Leone says he is very appreciative of the benefits of having the Red Line extended.

"With the price of gas and the cost of parking facilities in downtown Boston, I think this is one of the best things that could happen for this area," he says. "The inconvenience that the local resident is experiencing now because of construction will be well worth the benefits of having the extension in the future."

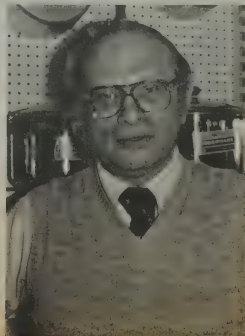
"I'd love to see it come into Arlington," he says.

### SIMON SHAPIRO

SIMON SHAPIRO is frequently a voice for the merchants whose businesses are located in the path of Red Line Northwest construction.

As a founder and the chairman of Merchants on the Line (MOTL), Mr. Shapiro encourages individual merchants to request his assistance in resolving any concerns they have about construction. He also works to see that an organized effort by affected retailers approach construction positively through a program consisting of sales promotions and ongoing public relations with the community.

"I see my role as a liaison between the various business groups, the city and the MBTA," says Mr. Shapiro, whose own business, Tags True Value Hardware, is



located in the Porter Square Shopping Center, immediately adjacent to the Porter Square station construction site. "And I see the role of Merchants on the Line as assisting the small merchant in maintaining and stimulating business during the construction period."

Merchants on the Line, in Mr. Shapiro's opinion, is achieving success and has brought about positive results that "will continue long after construction is completed."

"We (the merchants) are developing a fraternal type of relationship," he says. "We're a melting pot of merchants, who are meeting — often for the first time — and finding out that we all share the same problems and needs."

MOTL "has provided the time and place for us to get together," he says. "I think it's great."

President of Tags since 1972, Mr. Shapiro has been involved in civic and business organizations. He is vice chairman of the Cambridge Arts Council, a member of the Cambridge Rotary, a former director of the Cambridge Chamber of Commerce, and is presently a corporate board member of the Cambridge YMCA and Mount Auburn Hospital. He is also a member of the Executive Board of the Brockton Arts Center and is currently treasurer of the Boston Area Bicycle Coalition.



### MICHAEL BRENNAN

MICHAEL BRENNAN's role in the Red Line Northwest Extension isn't always a popular one. But his is a necessary function for a project of this size.

Mr. Brennan is a right-of-way agent for the MBTA, whose duties range from negotiating for the purchase and/or lease of property in the path of the extension to relocating property owners whose homes or businesses have been taken for construction.

"I know there are people out there who would prefer never seeing me," Mr. Brennan says. "But I think I have a great deal of empathy for the residents and business people I work with, and I think many of those who have put their trust in me have done so for that reason."

A graduate of St. Anselm's College, former executive director of the Lynn Redevelopment Authority and former assistant director of a Model Cities Program, Mr. Brennan is often involved in as many as a dozen projects at a time.

One of his tasks is to work with Somerville City Officials to find parking spaces to replace those that have been lost to construction in Davis Square.

"We secured spaces at the Ming Toy Restaurant, and another agreement with the Dilboy Post will result in an additional 38 spaces for this shopping area," the right-of-way agent says. "We're continuing our efforts to find additional parking."

Mr. Brennan, who recently passed his real estate exam certifying him as a licensed real estate broker, has been working at the MBTA since December of 1977. He usually works with Walter McLeod, a senior right-of-way agent, and Gino Palmacci, manager of right-of-way.

Although people are not always eager to meet him, Mr. Brennan says he enjoys his job because he is constantly dealing with people and doing what he can to assist them with difficult but necessary changes.

"I think a person's attitude toward what they're doing and who they're working with are the most important factors," says Mr. Brennan. "Hopefully, my desire to assist is projected into the work I do."



Harvard Square Station project.

"I think it's really good experience for me," says the 22-year-old Belmont resident. "I'm learning about many different techniques, like slurry walls — techniques I've never encountered before."

Miss Raymond spends most of her time working with schedules and plans inside Perini's Harvard Square field office, although she did enjoy working on the site with the survey crew for a few days last fall.

Her most recent task is revising the overall construction schedule, to provide Perini with a comprehensive picture of the work being done so that the contract proceeds on schedule.

"I really have to know what's going on and where it's going on," Miss Raymond says, explaining that she relies on computers and Garry Balboni, Perini's project engineer for



# RED LINE NEWS

Northwest Extension

Number 11

Spring 1980

## The T Transforms a Claypit/Dump into Parkland

by David Smith

It's all moonscape now, but better times are ahead for the old Cambridge dump. Screened from the eyes of Alewife Brook Parkway commuters by the facade of the Fresh Pond shopping center, a transformation is under way. Where once a 125-foot-deep claypit yielded bricks for Cambridge houses, and where later loads of detritus from those houses filled the pit to the top again, the MBTA and the City are collaborating on yet another incarnation for the place. By the middle of the decade there will be a 51-acre park and playground here.

On a recent chilly and overcast afternoon, it's 51 acres of moonscape that I'm clambering over with George McGinnity, the T's Materials Handling Inspector on the site. McGinnity, a genial young Irish American with a bright green shamrock on his yellow hardhat, worked here for the City in the late 60s, when the dump was still a dump. Now he is supervising the preliminary stages of its new identity as a playground.

According to McGinnity, the City took over the site from the New England Brick Company in 1961. Large-scale dumping continued for 20 years, and the area remained in some-time use throughout the 70s. In

See Claypit/Dump, page 2



Rarely seen in this part of the country, these side-car dump trains are native to the iron ore mines of the northwest. The MBTA is using these to haul excavated materials from Red Line construction sites between Harvard and Davis Squares to the Cambridge City Dump. At the dump, the excavated materials are being used as fill for a 51-acre athletic complex.

## MOTL Sponsors World's Longest Sidewalk Sale

by David Stephenson

There's no category in the Guinness Book of Records for "Longest Sidewalk Sale," but that may change this weekend.

On Saturday, May 31, merchants from Davis Square to Harvard Square get a chance to make history and you get a chance to have fun and save money, as Merchants on the Line (MOTL) stage "The World's Longest Sidewalk Sale." The sale, which will stretch 2.1 miles, from Davis Square, Somerville to Porter Square, then down Massachusetts Avenue to Harvard Square.

No one knows if such a mammoth sale will make the record books, but you are assured of fun for the whole family and excellent shopping values. The sale, all day Saturday, wraps up the five-day "Red Rider Sale Days" promotion staged by MOTL to draw attention to the exceptional variety of merchandise, restaurants and services available in the Red Line Northwest Extension construction.

Participating merchants will be identified by MOTL stickers in their windows and the entire route will have a festive air, with thousands of red helium balloons. Many stores will have red sidewalk sale tables outside with special sales merchandise,

identified by a distinctive Red Line price tag. Saturday's attractions also include a parade from Porter Square through Harvard Square and then on to the Cambridge River Festival, plus musicians, clowns, mimes and jugglers who will roam throughout the area. Somerville and Cambridge artists have been invited to hang and sell their works.

Since Tuesday, "Red Rider Sale Days" have brought traveling musicians to the four shopping areas, and children have been treated to free rides on an antique fire engine, "Fiedler I" from the Museum of Transportation. Shoppers have been and still can register for prizes reflecting "Red Rider's" transportation theme. These include a red bike and red roller skates, donated by Sears; passes for the Museum of Transportation; and MBTA monthly passes. Other prizes include a weekend in Montreal for two with travel arrangements by Crimmon Travel, and a dinner for two at the Hotel Sonesta's Rib Room.

"Many people from throughout the area will be drawn to Cambridge this weekend by the annual River Festival, so we see 'The World's Longest Sidewalk Sale' as our contribution to extending the festive

atmosphere to Somerville and North Cambridge," says MOTL spokesman Simon Shapiro, president of P&GS True Value Hardware. "We also want to show people who don't come to our area frequently that the Red Line construction really hasn't caused that much disruption, and that it still makes sense to shop at the extraordinarily diverse establishments represented in our organization."

MOTL, organized in late 1978, has sponsored free community services

such as vision clinics; it worked to increase the amount of parking in the construction area; and conducted special sales promotions to thank their loyal customers for continuing to shop in the area during construction.

David Stephenson is a writer for Agnew, Carter, McCarthy, Inc., MBTA Consultants for Merchants on the Line.



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# Claypit / Dump

continued from page 1

February 1978, McGinnity recalls working for days to unload a kind of refuse which many people have wished, during the past two winters, that they could have back again: the snows of the great blizzard, trucked in from all over Cambridge. The T arrived on the scene the following October and a few months later began delivering something more durable than snow and more substantial than the 20 years of household effluvia filling the pit: the "muck" from the rapidly lengthening cuts, shafts, and tunnels of the Red Line Extension.

"Muck" is a miners' word that covers anything and everything dug out of a hole. The muck we're walking on here is mostly not the wet, slimy stuff that the word ordinarily denotes but rather is hunks of stony rubble ranging in size from baseballs to basketballs. In the past eight months, 200,000 cubic yards of it have been scraped, chipped, and blasted from subterranean Cambridge/Somerville and delivered here — enough to build a column one yard square and 113 miles high, a lot of muck by anyone's definition.

"And there are 400,000 yards to come," George McGinnity says.

We are standing now on the high point of the site, a railroad spur laid along a narrow causeway which rises six feet or so above the surrounding terrain. The lunar effect is suggested not only by the grey, undifferentiated appearance of the 51 acres of muck but also by the monster graders and bulldozers parked here and there — vehicles whose fat tires and chunky forms seem designed for the soft surface of an airless world. A few

pipes stick up like experimental stations — and in fact they have been placed here to monitor the settlement caused by the arrival of so many tons of new fill and to vent gases from the compacted rubbish underneath. Downhill from us rests the thin shell of McGinnity's command trailer, tentative as an astronaut's temporary habitation.

Nonetheless, one need only raise one's eyes in order to be returned firmly to earth. To the east stand the familiar sentinels of the Prudential and Hancock towers, to the west the encircling hills of Arlington. And closer by we are hemmed in by the blank brown cinder blocks of the shopping center's backside and the blind boarded windows of Jefferson Park housing project. A few seagulls with long memories of tasty garbage wheel idly overhead. It is hard — and also pleasant — to imagine the verdant, playful place that will exist here within a few years.

The foundations of the playground arrive daily from three sites where there will be new Red Line stations: Harvard Square, Porter Square, and Davis Square. Presently, the deliveries come from these sites via rail and truck. During peak operations, up to 1000 cubic yards of fill are dumped each day.

"By using the specially constructed haulroad, heavy trucks are kept off the city streets", McGinnity observes.

Today, however, operations at Davis are slower. There is to be only one train, and as the afternoon passes, even that is delayed. About 4 o'clock Steve Walsh, Resident Engineer for the Davis to Porter Tunnel, stops by the scales to explain the slowdown to McGinnity. Some tricky rock conditions have been encountered in the tunnel, and careful bracing is required before the heading can be advanced. Less muck, fewer train-trips.

At 4:30, I'm up on the causeway again to watch the train come backing in, with a well-worn blue caboose leading the way. Between the caboose and the engine are strung eight long, low-slung, MBTA-owned freight cars of a special type. Developed for use in re-mining (US Steel owns a fleet of 400 of them), the cars are equipped with a compressed-air dumping system that can tilt their beds approximately 50° to either side. As the bed tilts, the side of the car folds neatly out of the way and the load of muck tumbles to the foot of the causeway, where the giant caterpillars can get at it and start distributing it according to McGinnity's directions.

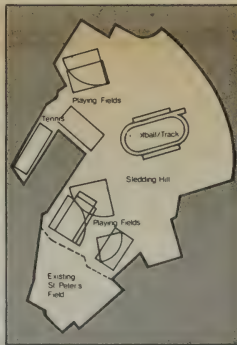
What are we waiting for, then?

The answer comes from Marty Corbin, a veteran B&M brakeman with the same old-time railroad look about him as the caboose he comes hopping down from.

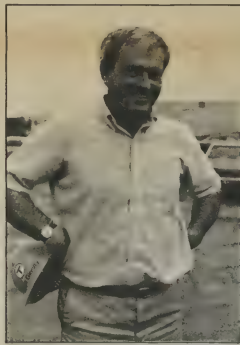
It seems that the "rams" which tilt the cars are powered by air from the train's brake-line. But the pressure needed for dumping 50 yards of muck is much greater than that for braking the train, so the load must sit here for a period of time while the engine builds up 120 pounds-per-square-inch in the dump cylinders.

"We're not allowed to ride with the pressure up," Marty explains.

By 6:15, the system is ready for action. One by one the cars' mechanisms are triggered, and the slow, smooth, graceful tilt begins with a hiss of escaping air and ends with a rush and rumble of falling rock. Only five of the eight cars are loaded this afternoon, and in the fifth one part of the load is frozen to the bed of the car, so that, as the center of gravity shifts with the tilt, the wheels on the opposite side actually lift a few inches from the track. The whole apparatus hangs there for a moment in precarious balance, held by the couplings of the adjacent cars. Then the load breaks free and falls and the wheels come slamming back down again. Mission accomplished.



PAST—PRESENT—FUTURE—(from top to bottom), the site of the Cambridge City Dump when it was a clay-pit for a brick-making company in 1919; the dump site as it looks now, photographed from the roof of the Fresh Pond Apartment Complex; and a preliminary plan of the recreational facility that will be constructed atop excavated materials from Red Line North-west Construction tunnels and stations during the 1980s.



Closely witnessing the transformation of the Cambridge City Dump into an athletic facility is Cambridge resident George McGinnity, the MBTA's Materials Handling Inspector at the dump site. Prior to his MBTA position, Mr. McGinnity was the general contractor for the City when it used the site as a dump during the 1960s.

"And that's how it goes," George McGinnity says. We have seen the arrival of the first 280 of the last 400,000 yards. The T is scheduled to continue dumping here until October 1981. Then the City will be moved in with loam and landscaping. By 1986, some fullback will probably be plunging for a first down on the spot where McGinnity and I are standing. Plans for the playground include one football field, two football practice fields, two soccer fields, two baseball fields, three softball fields, several tennis and basketball courts, and a sledding slope.

Chances are that as he picks himself up and returns to the huddle, the fullback will be unaware that he is treading on a brickpit, a dump, and the scooped-out insides of almost three miles of subway tunnel and stations.

David Smith is a freelance writer commissioned to write stories about Red Line construction by the MBTA's Cambridge Arts Council Program.

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Massachusetts Bay Transportation Authority  
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58 Day Street  
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Francis M. Kerville  
Assistant Director of Construction — NW

John Carey  
Project Manager  
(Davis Square to Alewife)

George Way  
Project Manager  
(Harvard Square to Davis Square)

Peter Lynch  
Project Manager — Northwest Development

Writer and Coordinator:  
Charles D. Pizzo  
Special Assistant for Public Information—  
Red Line Northwest

## FOR MORE INFORMATION, CALL:

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# Red Line People

## JACK LANE

JACK LANE once worked as a cashier and stock boy for the Star Market in the Porter Square Shopping Center.

Now, he's working near that same Star Market, overseeing construction of a subway station for the MBTA's Red Line Northwest Extension.

Mr. Lane is the MBTA's resident engineer for Porter Square Station, which is being built beneath the surface of the shopping center parking lot and adjacent intersection of Somerville Avenue and White Street.



As resident engineer, he is responsible for monitoring the progress of station construction, checking that all materials used are of the best quality, and generally assuring that construction proceeds smoothly. He works closely with the station contractor, the joint venture of Slattery-MacClean Grove, and with a team of MBTA inspectors, who monitor and verify all aspects of construction.

Formerly an engineer with the Vapori Construction Company and the Malden Redevelopment Authority before working on other MBTA construction projects, Mr. Lane says he is particularly proud to be working on this project because the station is located basically in his old neighborhood.

Son of Mrs. Grace Lane and the late Jack Lane Sr., who worked 20 years for the City of Somerville Department of Public Works, Jack Jr. grew up just over the Somerville line on Summer Street, where his mother still resides. He is a graduate of Somerville High School, and North-eastern University. It was during those years that he worked in the Star Market in Porter Square.

"I am proud to be involved in a project that is so important to the future of this area," Mr. Lane says. "I see Porter Square Station as the key to progress. It will mean improvements for the area, offer the benefits of rapid transit to the people who live here, and be a tremendous boost to the businesses."

"I feel proud to be part of the team that is creating this piece of history," he says.

Mr. Lane is married to the former Mary Breslin, who grew up on Upland Road in Cambridge, also in the neighborhood. They now live in Waltham with their three children: Jacqueline, Sean and Gerald.



## ADAM BASARABA

Thirty years of construction experience stands behind the man who supervises all field operations for the building of the Harvard to Porter Tunnel.

ADAM BASARABA, General Superintendent for the joint venture of Morrison-Knudsen, White & Mergentime, tunnel contractor, has been supervising major underground construction projects throughout the western hemisphere since he was 19 years old, and has been in charge of as many as 3,300 workers.

Mr. Basaraba, who has worked for Morrison-Knudsen for 25 years, headed up construction operations for hydro projects in the Dominican Republic, railway tunnels in Peru, a copper mine development project in Chile, and an underground powerhouse in Cuba, which he worked on through the Revolution during the 1960s. Altogether, he spent 17 years working on large projects in South America, in addition to many years on powerhouse and hydro projects in Canada and the U.S.

Here in Cambridge, Mr. Basaraba is in charge of all tunneling activity, working directly under Bill Beebe, Project Manager for the Harvard to Porter Tunnel contract. His daily activities include keeping a check on all equipment, checking rock conditions in all tunnel headings, coordinating the delivery of supplies to all sites associated with the project, and giving directions to a force of approximately 180 workers, whose safety during tunneling operations is what Mr. Basaraba says is always his number one consideration.

There is a good deal involved in running a job like this, he says, pointing out that the Harvard to Porter Tunnel project is just as challenging as some of the major projects of his past, although it is smaller in terms of work force and scope.

"Here, the problem is space," Mr. Basaraba says, referring to the fact that the tunnel is being constructed through such a densely populated and active retail area of Cambridge. "We always have to plan our moves because we're working in such small areas." For example,

supplies must be delivered to sites on a daily basis to prevent overstocking and taking up valuable working space, every bit of which is needed, the superintendent explains.

In many ways, building a tunnel in Cambridge is as challenging as building an underground dam, involving a work force of 3,300 in Chile, he says.

The challenge of such jobs is what has drawn and kept Mr. Basaraba in the construction business and prompted him to move his family to a variety of places throughout North and South America.

A resident of Beverly at present, Mr. Basaraba says he actually considers his home to be Vancouver, British Columbia.

"I still call it home," he says. "Even though I've only spent about three of the past 25 years there. It's such a nice location."

## CATHY CUNNINGHAM

CATHY CUNNINGHAM is often physically exhausted when she leaves her Red Line job at night. But she loves her very physical job that is contributing to something of permanence.

Ms. Cunningham is an apprentice electrician employed by Lord & Mass. Electric, a joint venture working as a sub-contractor to the Perini Corporation for the construction of the Red Line's new Harvard Square Station.

The excavated Flagstaff Park at the northern end of Harvard Square is Ms. Cunningham's present job location. There, she spends her days working with a team of seven, including another apprentice, three journeymen, a general foreman and a foreman, installing the conduits and raceways that will eventually hold the wires necessary for the electricity at Harvard Square Station.



"This is physically harder than any other job I've ever done," says the 22-year-old, describing former jobs in the social service field. "I enjoy it on the days when I'm at my peak, when I can function best. But I guess that's true with any job."

Ms. Cunningham has been working as an apprentice electrician since October 1978, when she successfully passed her apprenticeship training examination that is administered under state guidelines through the Electrical Workers Union. Since then, she has worked on four jobs, three of which were in Harvard Square, including construction of the MBTA's temporary Harvard/Brattle Station and Harvard University's new skating rink.

"I have been very lucky getting to this point," Ms. Cunningham says, explaining that timing was in her favor when she made application to the Electrical Workers Union for the apprenticeship training program. She had recently finished training through the federally-funded "Women in Construction" Program. In fact, Ms. Cunningham was one of the first graduates of this Building Trades training program, which has been the catalyst for many women entering the construction field during the past two years.

Once she passed her apprenticeship exam, Ms. Cunningham began her four-year program as an apprentice as required by the state before eligibility to take the Journeyman Examination in about a year and a half.

"It's the idea of doing something 'physical' that Ms. Cunningham says she enjoys most about her job.

"It's being involved in something that is actually there," she says. "I find it more rewarding than any job I've ever had."

Ms. Cunningham, who will be speaking to junior high school girls about her job during a career day later this month, also stresses the importance of a woman acquiring a skill. "I plan to tell these girls that it's not so far fetched for them as they may think. And being a skilled craftsman is to a woman's advantage."



## THOMAS MULDOON

Seismographs and sound level meters are the basic tools that THOMAS MULDOON uses in his job every day.

Mr. Muldoon is the MBTA Coordinator of Noise and Vibration for the Red Line Northwest Extension construction project. He is also Tunnel Safety Officer and the project's liaison with Harvard University, which is located in the midst of construction.

As Noise and Vibration Coordinator, Mr. Muldoon monitors Red Line contractors to assure that their work proceeds in compliance with established noise and vibration criteria. Contractors are required by the MBTA to keep daily records of the levels of sound and vibration generated by their work. Mr. Muldoon enters those records by comparing his own test results with the contractors' tests.

According to Mr. Muldoon, the heavy emphasis on noise monitoring and control prevalent to the Red Line project is considered somewhat unique. "This is the first major construction project where control of construction noise has been a significant consideration from the very conception of the project," says the MBTA Coordinator. "Never before have so many steps been taken to assure noise control throughout the incorporation of noise and blasting criteria in construction contracts."

Mr. Muldoon attended Mass Maritime Academy, Harvard University and received his MBA in Transportation Economics from the Wharton School of the University of Pennsylvania. He was a Commander in the Navy before joining the MBTA 15 years ago. In the Navy, he was a member of the Staff of the Naval War College in Newport, R.I., and served as both a legal and engineering officer. At the MBTA, Mr. Muldoon works as a Senior Planner and as the Coordinator of Right-of-Way and Relocation prior to his present job.

In addition to monitoring noise and vibration, Mr. Muldoon is the Tunnel Safety Officer for the Red Line. He has coordinated tunnel safety programs for the Cambridge and Somerville Fire Departments. "This is the first rock tunnel job of any magnitude in Cambridge," Mr. Muldoon says. "Tunnels are new to the fire department. Should any incident occur during construction, we want to make sure they know what to expect, what equipment to bring and how to approach the area. We're as concerned with the safety of the firemen as we are with our own employees."

Mr. Muldoon also lectures to college groups on tunneling techniques, noise and vibration control and geological conditions.

As a watch-dog over noise and vibration and as the man in charge of safety, Mr. Muldoon's role is very important to the Red Line and to the residents of Somerville and Cambridge.

"The Red Line Extension is referred to as the biggest show in town," Mr. Muldoon says. "We also intend to make it the safest."

## Harvard Square Station

### Contractor: Perini Corporation

#### SO MUCH IS HAPPENING NOW ...

The Red Line Northwest Extension is taking shape. Three of the four stations and two of five tunnel segments are under construction and progressing rapidly. Work on a third tunnel segment — Davis Square to Harvey Street in Cambridge — is scheduled to begin early this summer. By the end of 1980, all major construction contracts for the Red Line, including Alewife Station/Garage are expected to be awarded. All work should be underway by the beginning of next year.

Below are some of the highlights of construction as seen through the photographic eye of Jim Miller, who has photographically recorded MBTA construction for the past 30 years. Most of the photographs were taken during the past few weeks and provide an update of the various projects.



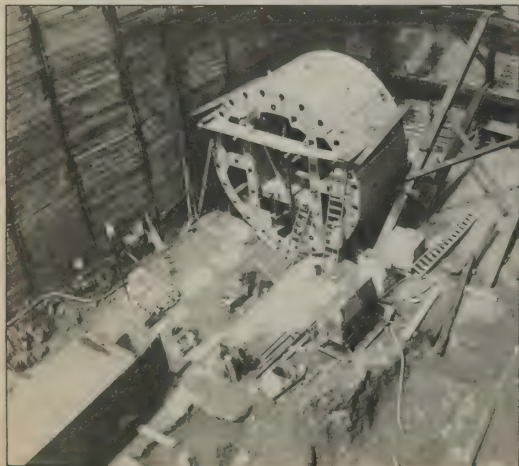
This photograph, taken from the northerly end of the Flagstaff Park looking toward Harvard Square, shows construction activity underway within the 55-foot-deep "coffer dam" and just beyond. Shown are preparations for the construction of the inbound (right) and outbound tracks that will connect the new Harvard Square Station to the new tunnels heading north. You can also see that the entrances to the old bus tunnels have been demolished. A top what looks like a bridge, traffic is proceeding on timber decking, which is being installed on the surface of a good portion of the Square for station construction. During the next couple of months, the contractor will continue installing decking, demolishing the bus tunnels and excavating beneath the decking. By the end of the year, a good portion of construction activity will be taking place beneath the decking while traffic and daily activities occur virtually undisturbed above.



Work is continuing for construction of the Holyoke Temporary Station, which will temporarily replace Harvard Square Station during demolition of that facility and construction of the new station. The photograph shows demolition of a portion of the roof of the existing station on Massachusetts Avenue, near Holyoke Center. Soon after the picture was taken, a new roof was installed and the area backfilled and paved to allow traffic to proceed over it. Meanwhile, construction of the walls of the new station through the "shurry wall method" is continuing in front of stores and businesses on Massachusetts Avenue, between Brigham's and Church Street.

## Harvard to Porter Tunnel

### Contractor: Joint Venture of Morrison-Knudsen, White & Mergentime



This photograph shows the assembly of one of two "shields", which will be used to excavate the soft ground portion of the Harvard to Porter Tunnel, between Harvard Square and the Holiday Inn on Massachusetts Avenue. This "shield", assembled in the northern part of Flagstaff Park, which is the juncture point for Harvard Square Station and the new tunnels north, operates like a giant cookie cutter that pushes through soft ground and leaves a tunnel of steel ribs and wood lagging behind it. When assembled, this shield looks like a large section of steel pipe, a little more than 25 feet in diameter and 21 feet in length.



Rock excavation for construction of the tunnels between Porter Square and the Holiday Inn is continuing from access shafts at Porter Square and the intersection of Garfield Street and Massachusetts Avenue. Pictured is a hydraulic drill jumbo used to drill holes into the rock face for the placement of explosives and rock bolts to support the tunnel. The photograph was taken in one of the tunnels near Porter Square. As of May 15, about 2,000 feet of tunnel had been excavated. Concreting operations will begin soon in the tunnels heading south from Porter Square.



## Porter Square Station Contractor: Joint Venture of Slattery- MacClean Grove

This photograph shows the pilot tunnel in Porter Square, which is serving as the access point for excavation of the 125-foot-deep train platforms and tunnels of Porter Square Station. During the next year and a half, excavation of a 75-foot-wide cavern to enclose those platforms will continue beneath the Porter Square Shopping Center parking lot. Meanwhile, the contractor will begin building the station's mezzanine area, which will be located about 25 feet beneath the surface of Somerville Avenue and White Street. During the next few months, timber decking will be installed on the surface of these two streets to allow traffic to proceed through the area while construction takes place beneath the decking.

## Davis to Porter Tunnel Contractor: Perini Corporation



This photograph shows one of the tunnels between the Grove Street access shafts and Davis Square. These tunnels are being excavated through a variety of earth conditions, with a variety of excavation methods at depths ranging from 75 to 85 feet beneath the surface. Pictured is a drilling operation for the preparation of blasting the bottom portion of the tunnel. If you look at this photograph closely, you will see that the top portion of the tunnel is clay and a mixture of rock and clay. At the right is the arm of the Drill Jumbo, which is able to bore 12-foot-deep holes in the rock face for the placement of explosives. A complex support system is required to support the soft ground above these tunnels. This is why these tunnels are more circular in shape than the horse-shoe-shaped tunnels being excavated through solid rock.



Concreting operations are well underway in the outbound tunnel between the Grove Street shafts and Porter Square. As this photograph illustrates, sections of the invert or tunnel floor have been poured, and the contractor is in the process of pouring concrete, installing steel reinforcing bars and constructing the forms for the curb and starter walls (the lowest portion of the arch) and tunnel arch. Notice that the invert is on two levels. This is to provide for the installation of a "floating slab", a modern method of cushioning train tracks to control noise. While concreting operations proceed in this portion of the tunnel, rock excavation continues closer to Porter Square. In total, approximately 4,600 feet of tunnel has been excavated to date.

## Davis Square Station Contractor: Perini Corporation



Slurry wall operations for the construction of the underground walls for Davis Square Station are nearly completed. Approximately 86 percent of the 1,350 lineal feet of slurry walls required for this station have been installed. The station contractor expects that the remaining sections will be constructed by early summer. This photograph, taken in February, shows the operation in front of the Russo property on Holland Street. A concrete truck is shown backed up to a trench and is pouring concrete into a pipe for the formation of a section of wall. As you can see, the front of the building is covered with plastic to protect it from any spray of the clay-based slurry during the operation. Within the next couple of weeks, the contractor will begin station excavation. As sections of the walls are exposed, they will be secured to the surrounding ground with long steel rods, called tie backs.



A reinforced box culvert, which will run the entire length of the south side of Davis Square Station, is being constructed. The photograph shows a portion of this culvert, which is 8 feet by 7 feet and 630 feet long. It is required to update part of the city's storm drainage system and divert it around the station structure. In addition, the contractor will be installing decking on the surface of Holland Street and College Avenue for station excavation. This decking will allow traffic and other daily activities to proceed as normal, while excavation and construction takes place beneath. Installation of bracing for the decking began during the past two weeks.

## Arts On The Line

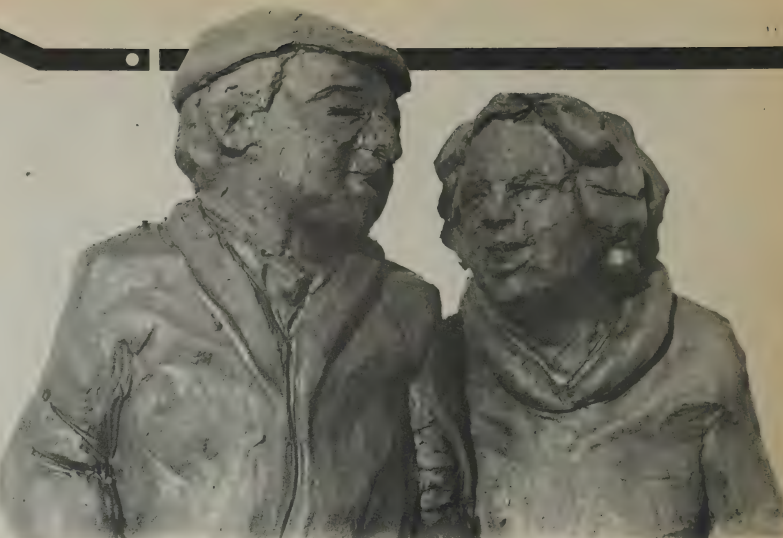
Twenty artists have been commissioned by the MBTA through Arts On The Line to create permanent work for the four new Red Line Stations. These photographs of the artists' proposals are part of a continuing effort of the MBTA and Arts On The Line to publicly announce and congratulate the selected artists. A photograph of each artist's work will appear in the next several editions of the Red Line News. The selected artists are:

For **Harvard Square**: Dimitri Hadzi, Gyorgy Kepes, Joyce Kozloff, Ann Norton

For **Porter Square**: Carlos Dorrien, Mags Harries, David Phillips, Will Reimann, Susumu Shingu, Bill Wainwright

For **Davis Square**: Belfast Bay Tileworks (Jack Gregory), Sam Gilliam, Jr., Christopher James, James Tyler

And, For **Alewife**: Stephen Antonakos, David Davison, Richard Fleischner, Joel Janowitz, Bill Keyser, Nancy Webb



JAMES TYLER

### Top Right

#### Davis Square Station

Somerville artist, James Tyler, will create ten life-size figures in cast masonry for the pedestrian park that will be created in the middle of Davis Square. This photograph shows clay models of two of the figures. The artist will be using Davis Square residents as models for the figures.



HERB ENGELSBERG

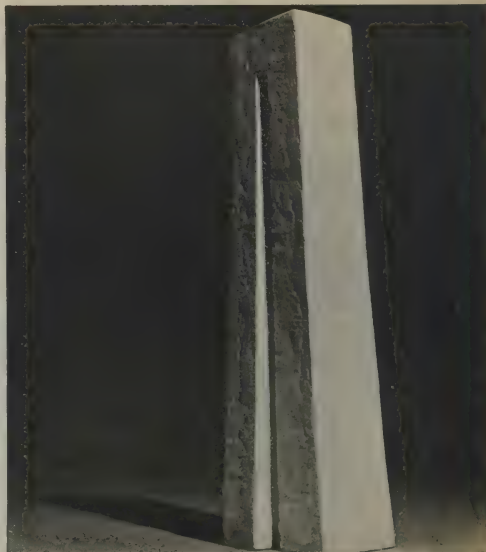
### Right

#### Alewife Station

Woodworker William Keyser has designed three benches for the Park and Ride area of the Alewife Station. The benches will be made of white oak and thickly covered with a clear protective coating. The benches provide an unusual and interesting kind of seating for almost 40 people.



HERB ENGELSBERG



HERB ENGELSBERG

#### Porter Square Station

William Wainwright is the artist who designed this mobile to hang over the escalator at the main entrance of the Porter Square Station. Each element in the mobile measures approximately 12 inches across and is made of a light weight aluminum. The piece will extend for approximately 60 feet out over the stairwell. The piece will move in a very light breeze and will reflect daylight down into the station's concourse.

#### Harvard Square Station

This plaster model of a 20' high brick gateway was designed by Ann Norton. It will be situated towards the center of the new traffic island to be built in Brattle Square. Its quiet dignity will offer a wholesome contrast to the congested traffic area around it and complement the wide use of brick in the surrounding buildings and sidewalk.



## RED LINE ARTISTS' EXHIBITION

The Hayden Gallery at MIT recently hosted an exhibition of the drawings and models by 20 artists commissioned by the MBTA for the four new Red Line stations. The exhibition opened on February 8 with Joan Mondale, wife of Vice President Walter F. Mondale, and Theodore Lutz, UMTA Administrator, as guests of honor. Mrs. Mondale stated: "The Arts On The Line project makes a sweeping statement regarding the place of art in our lives. It says that art does not belong only in museums or only in the homes of the wealthy. Art belongs to us all. Art is central to our lives; it's part of our daily routine. . . . It's not just the icing, it is the essence of life. The work of the 20 artists who are here today will be seen by every person who rides the Red Line to work, to shop, to hospitals, to concerts. We may be amused, confused or touched by it. But it will be ours. Public art reflects the conscience and ideals of our generation."

The exhibition was open for five weeks and attended by over 5,300 people, one of the largest attendance records ever for the Hayden Gallery. Twenty-six guided tours to school children, professional groups and university seminars were conducted. The Hayden Gallery also administered two workshops for Somerville art teachers.

All in all, it was an extremely successful event. If any group was unable to attend the exhibition and would like to see a slide show of the artists' works, please contact Jennifer Dowley, Director, Arts On The Line, at City Hall, Cambridge, MA 02139 or call 498-9033.



Somerville Mayor Eugene Brune (left) recently enjoyed his first tour of excavation underway beneath Davis Square for the construction of the Red Line's Davis to Porter Tunnel. Pictured with the Mayor, about to be hoisted into an access shaft to the tunnel, are left to right: Roger Borggaard, Project Manager for Perini Corporation for the Tunnel project; George Holland, Program Development Agent for the MBTA's Red Line Development Office; and Dan Kallis of the Coronet Restaurant in Davis Square.

## BOSTON-LOWELL RAILROAD LINE NEARLY COMPLETED

Work associated with the improvement and upgrading of the railroad right-of-way from Boston to Lowell is expected to be completed in June.

The joint venture of J. F. White — Gateway Realty Trust is nearing completion of their \$13,589,396 contract to improve 23 miles of double track in order to divert railroad freight traffic from the Freight Cut-Off, through North Cambridge and Davis Square, Somerville, abandoned to permit construction of the Red Line Northwest Extension.

The work, begun in May 1979, included the upgrading and resurfacing of the 23 miles of double track, the upgrading of signals and communication systems in Somerville and Wilmington, the lowering of tracks under 13 bridges and raising of 5 bridges, pole line work and the installation of a new drainage system along the entire route, which passes through the communities of Somerville, Medford, Winchester, Woburn, Wilmington, Billerica, Tewksbury and Lowell and on into New Hampshire.

William McNeil, Railroad Coordinator for the MBTA Red Line Project, and Ralph Hill, MBTA Area Engineer, have been overseeing the contractor's work under the direction of MBTA Project Manager, John Carey.

Says Mr. McNeil about the work, "It was a very difficult job but done beautifully and well coordinated with railroad freight and commuter rail operations. We are well satisfied with the progress of this job."

## RED LINE TUNNEL SEGMENT BIDS UNDER REVIEW

The MBTA is reviewing bids submitted by 4 contractors May 9 for the Davis Square, Somerville to Harvey Street, Cambridge, tunnel segment of the Red Line Northwest Extension.

Apparent low bidder was the joint venture of J. F. White, Morrison-Knudsen and Mergentime, whose bid was \$32,773,027.00. The MBTA's engineers estimate for the job was \$33,878,261.00.

The Davis Square to Harvey Street Tunnel contract will consist of construction of a two-track tunnel, about 3,740 feet long. It will be a cut-and-cover tunnel, constructed through use of the slurry wall method and installation of soldier piles and wood lagging through Cameron and Mass. Ave. The contract will also provide for the construction of a two-way haul road from vicinity of Davis Square to the west end of Cedar Street, near Russell Field, for the transport of excavation materials. Also included in this work will be the removal of the railroad tracks and relocation of utilities crossing the construction area. Vehicular traffic along Square Ave., Mass. Ave., Cedar St. and Harvey St. will be maintained at all times.



Representatives of the MBTA's Red Line Development Office and Perini Corporation's Davis Square projects recently participated in a Career Day at Northeastern Junior High School in Somerville. Careers in the Construction Industry was the title of a multi-media presentation given by 80 7th and 8th graders by George Holland, Program Development Agent for the MBTA and a former Building Trades Business Agent (pictured far left). David Piza, Project Engineer for Perini's Davis to Porter Tunnel Project (third from left); and Richard Capello, Assistant Project Engineer for Perini's Davis Square Station job (second from left). The trio presented a film about jobs in construction, and talked about their own experiences in the construction field. "It's not too early to begin thinking about your future," Dick Capello told the young people. The Red Line representatives' participation was part of an on-going effort by the MBTA and its contractors to be active in school and community events and programs. This Career Day was set up by Julie Loftus, Career Education Specialist for Somerville Schools.

## PROPERTY SURVEY PROGRAM OFFERED

The MBTA Red Line Development Office is still offering a property survey program to persons whose properties are in close proximity to Red Line construction.

Eligible property owners receiving the survey are visited by an MBTA consultant, who performs the inspection and documents the condition of the home or business with photographs and written text. The property owners receive a copy of the report.

To date, 150 properties in Cambridge and Somerville have been inspected and documented. This is in addition to properties surveyed by contractors, as a requirement of their respective contracts in each of their immediate work areas.

For more information about the program, contact George Holland at the Red Line Development Office at 628-1845 or M-B-T-A-R-E-D.

# The World's Longest Sidewalk SALE!

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Davis Square

Porter Square

Mass Ave

Harvard Square

T

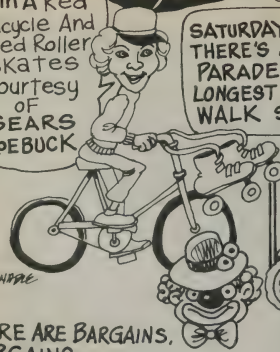


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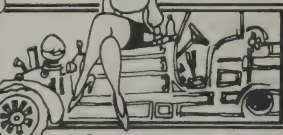


ART SHOWS AND SALES

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SATURDAY MAY 31, THERE'S A GRAND PARADE AND THE LONGEST SIDE-WALK SALE



FREE RIDES ON AN ANTIQUE FIRE ENGINE, FIEDLER I (T, TH, F 3-5 PM)

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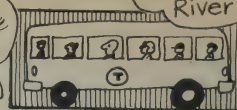


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WIN MONTHLY T-PASSES

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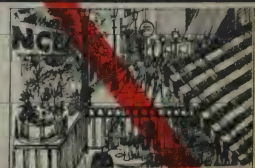
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# RED LINE NEWS

Spring 1980

by David Smith

See Claypit/Dump, page 2

by David Stephenson

Red Rider Sale Days page 8

## Claypit / Dump

continued from page 1

February 1978, McGinnity recalls working for days to unload a kind of refuse which many people have wished, during the past two winters, that they could have back again: the snows of the great blizzard, trucked in from all over Cambridge. The T arrived on the scene the following October and a few months later began delivering something more durable than snow and more substantial than the 20 years of household effluvia filling the pit: the "muck" from the rapidly lengthening cuts, shafts, and tunnels of the Red Line Extension.

"Muck" is a miners' word that covers anything and everything dug out of a hole. The muck we're walking on here is mostly not the wet, slimy stuff that the word ordinarily denotes but rather is hunks of stony rubble ranging in size from baseballs to basketballs. In the past eight months, 200,000 cubic yards of it have been scraped, chipped, and blasted from subterranean Cambridge/Somerville and delivered here enough to build a column one yard square and 113 miles high, a lot of muck by anyone's definition.

"And there are 400,000 yards to come," George McGinnity says.

We are standing now on the high point of the site, a railroad spur laid along a narrow causeway which rises six feet or so above the surrounding terrain. The lunar effect is suggested not only by the grey, undifferentiated appearance of the 61 acres of muck but also by the monster graders and bulldozers parked here and there—vehicles whose fat tires and chunky forms seem designed for the soft surface of an airless world. A few



Closely witnessing the transformation of the Cambridge City Dump into an athletic facility is Cambridge resident George McGinnity, the MBTA's Materials Handling Inspector at the dump site. Prior to his MBTA position, Mr. McGinnity was the general contractor for the City when it used the site as a dump during the 1960s.

pipes stick up like experimental stations—and in fact they have been placed there to monitor the settlement caused by the arrival of so many tons of new fill and to vent gases from the compacted rubbish underneath. Downhill from us rests the thin shell of McGinnity's command trailer, tentative as an astronaut's temporary habitation.

Nonetheless, one need only raise one's eyes in order to be returned firmly to earth. To the east stand the familiar sentinels of the Prudential and Hancock towers, to the west the encircling hills of Arlington. And closer by we are hemmed in by the blank brown cinder blocks of the shopping center's backside and the blind boarded windows of Jefferson Park housing project. A few seagulls with long memories of tasty garbage wheel idly overhead. It is hard—and also pleasant—to imagine the verdant, playful place that will exist here within a few years.

The foundations of the playground arrive daily from three sites where there will be new Red Line stations: Harvard Square, Porter Square, and Davis Square. Presently, the deliveries come from these sites via rail and truck. During peak operations, up to 1000 cubic yards of fill are dumped each day.

"By using the specially constructed haulroad, heavy trucks are kept off the city streets", McGinnity observes.

Today, however, operations at Davis are slower. There is to be only one train, and as the afternoon passes, even that is delayed. About 4 o'clock Steve Walsh, Resident Engineer for the Davis to Porter Tunnel, stops by the trailer to explain the slowdown to McGinnity. Some tricky rock conditions have been encountered in the tunnel, and careful bracing is required before the heading can be advanced. Less muck, fewer trips.

At 4:30, I'm up on the causeway again to watch the train come backing in, with a well-worn blue caboose leading the way. Between the caboose and the engine are strung eight long, low-slung, MBTA-owned freight cars of a special type. Developed for use in ore-mining (US Steel owns a fleet of 400 of them), the cars are equipped with a compressed-air dumping system that can tilt their beds approximately 50° to either side. As the bed tilts, the side of the car folds neatly out of the way and the load of muck tumbles to the foot of the causeway, where the flat excavators can get at it and start distributing it according to McGinnity's directions.

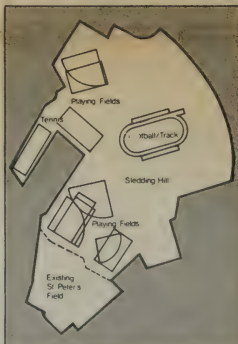
What are we waiting for, then?

The answer comes from Marty Corbin, a veteran B&M brakeman with the same old-time railroad look about him as the caboose he comes hopping down from.

It seems that the "rams" which tilt the cars are powered by air from the train's brake-line. But the pressure needed for dumping 60 yards of muck is much greater than that for braking the train, so the load must sit here for a period of time while the engine builds up 120 pounds-per-square-inch in the dump cylinders.

"We're not allowed to ride with the pressure up," Marty explains.

By 5:15, the system is ready for action. One by one the cars' mechanisms are triggered, and the slow, smooth, graceful tilt begins with a hiss of escaping air and ends with a rush and rumble of falling rock. Only five of the eight cars are loaded this afternoon, and in the fifth one part of the load is frozen to the bed of the car, so that, as the center of gravity shifts with the tilt, the wheels on the opposite side actually lift a few inches from the track. The whole apparatus hangs there for a moment in perilous balance, held by the couplings of the adjacent cars. Then the load breaks free and falls and the wheels come slamming back down again. Mission accomplished.



PAST—PRESENT—FUTURE—(from top to bottom), the site of the Cambridge City Dump when it was a clay-pit for a brick-making company in 1919; the dump site as it looks now, photographed from the roof of the Fresh Pond Apartment Complex; and a preliminary plan of the recreational facility that will be constructed atop excavated materials from Red Line Northwest Construction tunnels and stations during the 1980s.

"And that's how it goes," George McGinnity says. We have seen the arrival of the first 250 of the last 400,000 yards. The T is scheduled to continue dumping here until October 1981. Then the City will move in with loam and landscaping. By 1986, some fullback will probably be plunging for a first down on the spot where McGinnity and I are standing. Plans for the playground include one football field, two football practice fields, two soccer fields, two baseball fields, three softball fields, several tennis and basketball courts, and a sledding slope.

Chances are that as he picks himself up and returns to the huddle, the fullback will be unaware that he is treading on a brickpit, a dump, and the scooped-out inside of almost three miles of subway tunnel and stations.

David Smith is a freelance writer commissioned to write stories about Red Line construction by the MBTA's Cambridge Arts Council Program.

### Published by:

Massachusetts Bay Transportation Authority  
Red Line Northwest Development Office  
55 Day Street  
Somerville, Massachusetts 02144

Francis M. Keville  
Assistant Director of Construction—NW

John Carney  
Project Manager  
(Davis Square to Alewife)

George Way  
Project Manager  
(Harvard Square to Davis Square)

Peter Lynch  
Project Manager—Northwest Development

Writer and Coordinator  
Charlene D. Pizzo  
Special Assistant for Public Information—  
Red Line Northwest

FOR MORE INFORMATION, CALL

M-B-T-A-R-E-D or  
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# Red Line People

## JACK LANE

JACK LANE once worked as a cashier and stock boy for the Star Market in the Porter Square Shopping Center. Now, he's working near that same Star Market, overseeing construction of a subway station for the MBTA's Red Line Northwest Extension.

Mr. Lane is the MBTA's resident engineer for Porter Square Station, which is being built beneath the surface of the shopping center parking lot and adjacent intersection of Somerville Avenue and White Street.



As resident engineer, he is responsible for monitoring the progress of station construction, checking that all materials used are of the best quality, and generally assuring that construction proceeds smoothly. He works closely with the station contractor, the joint venture of Slattery-Maclean Grove, and with a team of MBTA inspectors, who monitor and verify all aspects of construction.

Formerly an engineer with the Vane Construction Company and the Malden Redevelopment Authority before working on other MBTA construction projects, Mr. Lane says he is particularly proud to be working on this project because the station is located basically in his old neighborhood.

Son of Mrs. Grace Lane and the late Jack Lane Sr., who worked 20 years for the City of Somerville Department of Public Works, Jack Jr. grew up just over the Somerville line on Summer Street, where his mother resides. He is a graduate of Somerville High School, and Northeastern University. It was during those years that he worked in the Star Market in Porter Square.

"I am proud to be involved in a project that is so important to the future of this area," Mr. Lane says. "I see Porter Square Station as the key to progress. It will mean improvements for the area, offer the benefits of rapid transit to the people who live here, and be a tremendous boost to the business."

"I feel proud to be part of the team that is creating this piece of history," he says.

Mr. Lane is married to the former Mary Breslin, who grew up on Upland Road in Cambridge, also in the neighborhood. They now live in Waltham with their three children: Jacqueline, Sean and Gerald.



## ADAM BASARABA

Thirty years of construction experience stands behind the man who supervises all field operations for the building of the Harvard to Porter Tunnel.

ADAM BASARABA, General Superintendent for the joint venture of Morrison-Knudsen, White & Mergentime, tunnel contractor, has been supervising major underground construction projects throughout the western hemisphere since he was 19 years old, and has been in charge of as many as 3,300 workers.

Mr. Basaraba, who has worked for Morrison-Knudsen for 26 years, headed up construction operations for hydro projects in the Dominican Republic, railway tunnels in Peru, a copper mine development project in Chile, and an underground powerhouse in Cuba, which he worked on through the Revolution during the 1980s. Altogether, he spent 17 years working on large projects in South America, in addition to many years on powerhouse and hydro projects in Canada and the U.S.

Here in Cambridge, Mr. Basaraba is in charge of all tunneling activity, working directly under Bill Beebe, Project Manager for the Harvard to Porter Tunnel contract. His daily activities include keeping a check on all equipment, checking rock conditions in all tunnel headings, coordinating the delivery of supplies to all sites associated with the project, and giving directions to a force of approximately 180 workers, whose safety during tunneling operations is what Mr. Basaraba says is always his number one consideration.

There is a good deal involved in running a job like this, he says, pointing out that the Harvard to Porter Tunnel project is just as challenging as some of the major projects of his past, although it is smaller in terms of work space and scope.

"Here, the problem is space," Mr. Basaraba says, referring to the fact that the tunnel is being constructed through such a densely-populated and active retail area of Cambridge. "We always have to plan our moves because we're working in such small areas." For example, supplies must be delivered to sites on a daily basis to prevent overstocking and taking up valuable working space, every bit of which is needed, the superintendent explains.

In many ways, building a tunnel in Cambridge is much like building an underground dam, involving a work force of 3,300 in Chile, he says.

The challenge of such jobs is what has drawn and kept Mr. Basaraba in the construction business and prompted him to move his family to a variety of places throughout North and South America.

A resident of Beverly at present, Mr. Basaraba says he actually considers his home to be Vancouver, British Columbia.

"I still call it home," he says. "Even though I've only spent about three of the past 23 years there. It's such a nice location."

## CATHY CUNNINGHAM

CATHY CUNNINGHAM is often physically exhausted when she leaves her Red Line job at night. But she loves her very physical job that is contributing to something of permanence.

Ms. Cunningham is an apprentice electrician employed by Lord & Mass. Electric, a joint venture working as a sub-contractor to the Perini Corporation for the construction of the Red Line's new Harvard Square Station. The excavated Flagstaff Park at the northern end of Harvard Square is Ms. Cunningham's present job location. There, she spends her days working with a team of seven, including another apprentice, three journeymen, a general foreman and a foreman, installing the conduits and raceways that will eventually hold the wires necessary for the electricity at Harvard Square Station.



"This is physically harder than any other job I've ever done," says the 22-year-old, describing former jobs in the social service field. "I enjoy it on the days when I'm at my peak, when I can function best. But I guess that's true with any job."

Ms. Cunningham has been working as an apprentice electrician since October 1978, when she successfully passed her apprenticeship training examination that is administered under state guidelines through the Electrical Workers Union. Since then, she has worked on four jobs, three of which were in Harvard Square, including construction of the MBTA's temporary Harvard/Brattle Station and Harvard University's new skating rink.

"I have been very lucky getting to this point," Ms. Cunningham says, explaining that timing was in her favor when she made application to the Electrical Workers Union for the apprenticeship training program. She had recently finished training through the federal "under construction" program. In fact, Ms. Cunningham was one of the first graduates of this Building Trades training program, which has been the catalyst for many women entering the construction field during the past two years.

Once she passed her apprenticeship exam, Ms. Cunningham began her four-year program as an apprentice as required by the state before eligibility to take the Journeyman Examination in about a year and a half.

"It's the idea of doing something 'physical' that Ms. Cunningham says she enjoys most about her job.

"It's being involved in something that is actually there," she says. "I find it much more rewarding than any job I've ever had."

Ms. Cunningham, who will be speaking to junior high school girls about her job during a career day later this month, also stresses the importance of a woman acquiring a skill. "I plan to tell these girls that it's not so far fetched for them as they may think. And being a skilled craftsman is to a woman's advantage."



## THOMAS MULDOON

Sensings the noise and sound level meters are the basic tools that THOMAS MULDOON uses in his job every day.

Mr. Muldoon is the MBTA Coordinator of Noise and Vibration for the Red Line Northwest Extension construction project. He is also Tunnel Safety Officer for the project's liaison with Harvard University, which is located in the midst of construction.

As Noise and Vibration Coordinator, Mr. Muldoon monitors Red Line contractors to assure that their work proceeds in compliance with established noise and vibration criteria. Contractors are required by the MBTA to keep daily records of the levels of sound and vibration generated by their work. Mr. Muldoon verifies those records by comparing his own test results with the contractors' tests.

According to Mr. Muldoon, the heavy emphasis on noise monitoring and control prevalent to the Red Line project is considered somewhat unique. "This is the first major construction project where control of construction noise has been a significant consideration from the very conception of the project," says the MBTA Coordinator. "Never before have so many steps been taken to assure noise control through the incorporation of noise as a blasting criterion in construction contracts."

Mr. Muldoon attended Mass Maritime Academy, Harvard University and received his MBA in Transportation Economics from the Wharton School of the University of Pennsylvania. He was a Commander in the Navy before joining the MBTA 15 years ago. In the Navy, he was a member of the Staff of the Naval War College in Newport, R.I., and served as both a legal and engineering officer. At the MBTA, Mr. Muldoon worked as a Senior Planner and as the Coordinator of Risk of-Way and Relocation prior to his present job.

In addition to monitoring noise and vibration, Mr. Muldoon is the Tunnel Safety Officer for the Red Line. He has coordinated tunnel safety programs for the Cambridge and Somerville Division of the MBTA. "This is the first rock tunnel job of any magnitude in Cambridge," Mr. Muldoon says. "Tunnels are new to the fire department. Should any incident occur during construction, we want to make sure they know what to expect when they come to bring and how to approach the area. We're as concerned with the safety of the firemen as we are with our own employees."

Mr. Muldoon also lectures to college groups on tunneling techniques, noise and vibration control and geological conditions.

As a watch dog over noise and vibration and as the man in charge of safety, Mr. Muldoon's role is very important to the Red Line and to the residents of Somerville and Cambridge.

"The Red Line Extension is referred to as the biggest show in town," Mr. Muldoon says. "We also intend to make it the safest."

## Harvard Square Station

### Contractor: Perini Corporation

#### SO MUCH IS HAPPENING NOW ...

The Red Line Northwest Extension is taking shape. Three of the four stations and two of five tunnel segments are under construction and progressing rapidly. Work on a third tunnel segment — Davis Square to Harvard Street in Cambridge — is scheduled to begin early this summer. By the end of 1980, all major construction contracts for the Red Line, including Alewife Station/Garage are expected to be awarded. All work should be underway by the beginning of next year.

Below are some of the highlights of construction as seen through the photographic eye of Jim Miller, who has photographically recorded MBTA construction for the past 30 years. Most of the photographs were taken during the past few weeks and provide an update of the various projects.

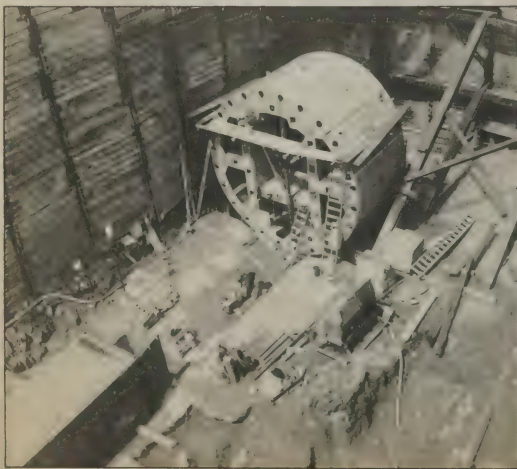
This photograph, taken from the northerly end of the Flagstaff Park looking toward Harvard Square, shows construction activity underway within the 58-foot-deep "coffer dam" and just beyond. Shown are preparations for the construction of the inbound (right) and outbound tracks that will connect the new Harvard Square Station to the new tunnels heading north. You can also see that the entrances to the old bus tunnels have been demolished. Atop what looks like a bridge, traffic is proceeding on timber decking, which is being installed on the surface of a good portion of the Square for station construction. During the next couple of months, the contractor will continue installing decking, demolishing the bus tunnels and excavating beneath the decking. By the end of the year, a good portion of construction activity will be taking place beneath the decking while traffic and daily activities occur virtually undisturbed above.



Work is continuing for construction of the Holyoke Temporary Station, which will temporarily replace Harvard Square Station during demolition of that facility and construction of the new station. The photograph shows demolition of a portion of the roof of the existing station on Massachusetts Avenue, near Holyoke Center. Soon after the picture was taken, a new roof was installed and the area backfilled and paved to allow traffic to proceed over it. Meanwhile, construction of the walls of the new station through the "slurry wall method" is continuing in front of stores and businesses on Massachusetts Avenue, between Brigham's and Church Street.

## Harvard to Porter Tunnel

### Contractor: Joint Venture of Morrison-Knudsen, White & Mergentime



This photograph shows the assembly of one of two "shields", which will be used to excavate the soft ground portion of the Harvard to Porter Tunnel, between Harvard Square and the Holiday Inn on Massachusetts Avenue. This "shield", assembled in the northern part of Flagstaff Park, which is the juncture point for Harvard Square Station and the new tunnels north, operates like a giant cookie cutter that pushes through soft ground and leaves a tunnel of steel ribs and wood lagging behind it. When assembled, this shield looks like a large section of steel pipe, a little more than 23 feet in diameter and 21 feet in length.

Rock excavation for construction of the tunnels between Porter Square and the Holiday Inn is continuing from access shafts at Porter Square and the intersection of Garfield Street and Massachusetts Avenue. Pictured is a hydraulic drill jumbo used to drill holes into the rock face for the placement of explosives and rock bolts to support the tunnel. The photograph was taken in one of the tunnels near Porter Square. As of May 15, about 2,000 feet of tunnel had been excavated. Concreting operations will begin soon in the tunnels heading south from Porter Square.



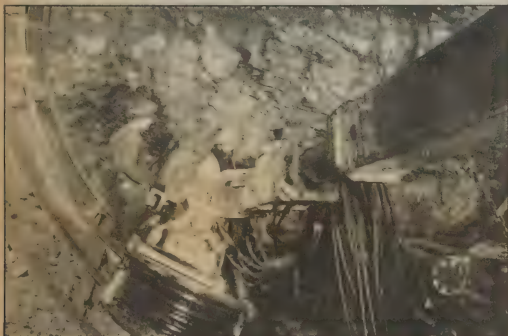




## Porter Square Station Contractor: Joint Venture of Slattery- MacClean Grove

This photograph shows the pilot tunnel in Porter Square, which is serving as the access point for excavation of the 128-foot-deep train platforms and tunnels of Porter Square Station. During the next year and a half, excavation of a 75-foot-wide cavern to enclose those platforms will continue beneath the Porter Square Shopping Center parking lot. Meanwhile, the contractor will begin building the station's mezzanine area, which will be located about 25 feet beneath the surface of Somerville Avenue and White Street. During the next few months, timber decking will be installed on the surface of these two streets to allow traffic to proceed through the area while construction takes place beneath the decking.

## Davis to Porter Tunnel Contractor: Perini Corporation



This photograph shows one of the tunnels between the Grove Street access shafts and Davis Square. These tunnels are being excavated through a variety of earth conditions, with a variety of excavation methods at depths ranging from 75 to 85 feet beneath the surface. Pictured is a drilling operation for the preparation of blasting the bottom portion of the tunnel. If you look at this photograph closely, you will see that the top portion of the tunnel is clay and a mixture of rock and clay. At the right is the arm of the Drill Jumbo, which is able to bore 12-foot-deep holes in the rock face for the placement of explosives. A complex support system is required to support the soft ground above these tunnels. This is why these tunnels are more circular in shape than the horse-shoe-shaped tunnels being excavated through solid rock.



Concreting operations are well underway in the outbound tunnel between the Grove Street shafts and Porter Square. As this photograph illustrates, sections of the invert or tunnel floor have been poured, and the contractor is in the process of pouring concrete, installing steel reinforcing bars and constructing the forms for the curb and starter walls (the lowest portion of the arch) and tunnel arch. Notice that the invert is on two levels. This is to provide for the installation of a "floating slab", a modern method of cushioning train tracks to control noise. While concreting operations proceed in this portion of the tunnel, rock excavation continues closer to Porter Square. In total, approximately 4,500 feet of tunnel has been excavated to date.

## Davis Square Station Contractor: Perini Corporation



Slurry wall operations for the construction of the underground walls for Davis Square Station are nearly completed. Approximately 86 percent of the 1,350 linear feet of slurry walls required for this station have been installed. The station contractor expects that the remaining sections will be constructed by early summer. This photograph, taken in February, shows the operation in front of the Russo property on Holland Street. A concrete truck is shown backed up to a trench and is pouring concrete into a pipe for the formation of a section of wall. As you can see, the front of the building is covered with plastic to protect it from any spray of the clay-based slurry during the operation. Within the next couple of weeks, the contractor will begin station excavation. As sections of the walls are exposed, they will be secured to the surrounding ground with long steel rods, called tie-backs.



A reinforced box culvert, which will run the entire length of the south side of Davis Square Station, is being constructed. The photograph shows a portion of this culvert, which is 6 feet by 7 feet and 630 feet long. It is required to update part of the city's storm drainage system and divert it around the station structure. In addition, the contractor will be installing decking on the surface of Holland Street and College Avenue for station excavation. This decking will allow traffic and other daily activities to proceed as normal, while excavation and construction takes place beneath. Installation of bracing for the decking began during the past two weeks.

## Arts On The Line

Twenty artists have been commissioned by the MBTA through Arts On The Line to create permanent work for the four new Red Line Stations. These photographs of the artists' proposals are part of a continuing effort of the MBTA and Arts On The Line to publicly announce and congratulate the selected artists. A photograph of each artist's work will appear in the next several editions of the Red Line News. The selected artists are:

**For Harvard Square:** Dimitri Hadzi, Gyorgy Kepes, Joyce Kozloff, Ann Norton

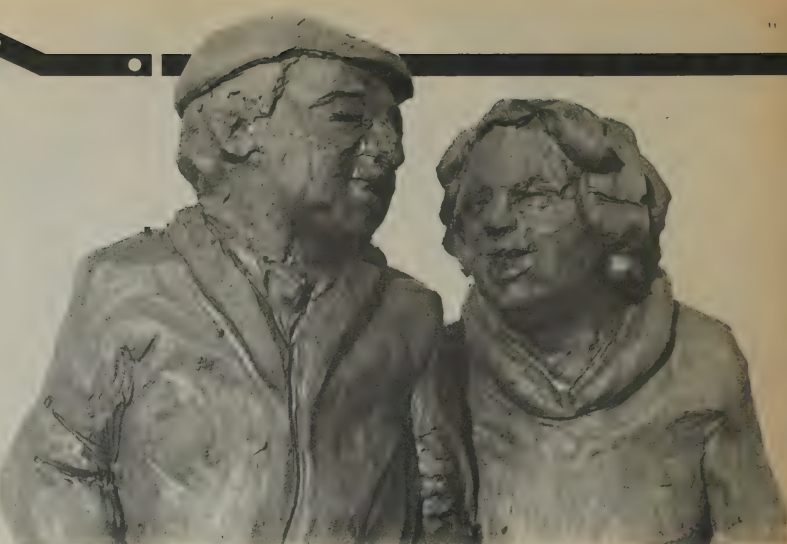
**For Porter Square:** Carlos Dorrien, Mags Harries, David Phillips, Will Reimann, Susumu Shingu, Bill Wainwright

**For Davis Square:** Belfast Bay Tileworks (Jack Gregory), Sam Gilliam, Jr., Christopher James, James Tyler

**And, For Alewife:** Stephen Antonakos, David Davison, Richard Fleischner, Joel Janowitz, Bill Keyser, Nancy Webb

### Top Right

**Davis Square Station**  
Somerville artist, James Tyler, will create ten life-size figures in cast masonry for the pedestrian park that will be created in the middle of Davis Square. This photograph shows clay models of two of the figures. The artist will be using Davis Square residents as models for the figures.



JAMES TYLER

### Right

**Alewife Station**  
Woodworker William Keyser has designed three benches for the Park and Ride area of the Alewife Station. The benches will be made of white oak and thickly covered with a clear protective coating. The benches provide an unusual and interesting kind of seating for almost 40 people.

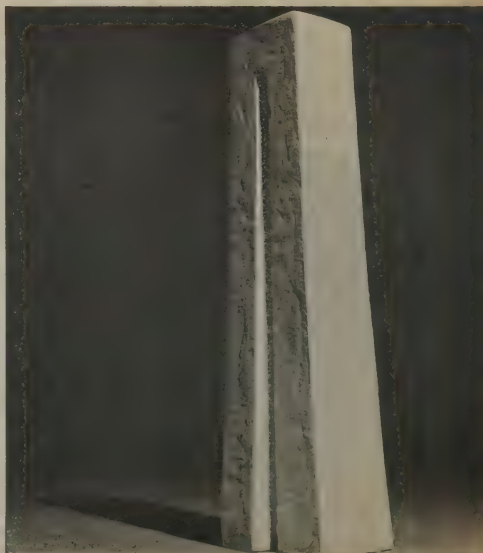


WILLIAM KEYSER



### Porter Square Station

William Wainwright is the artist who designed this mobile to hang over the escalator at the main entrance of the Porter Square Station. Each element in the mobile measures approximately 12 inches across and is made of a light weight aluminum. The piece will extend for approximately 60 feet out over the stairwell. The piece will move in a very light breeze and will reflect daylight down into the station's concourse.



### Harvard Square Station

This plaster model of a 20' high brick gateway was designed by Ann Norton. It will be situated towards the center of the new traffic island to be built in Brattle Square. Its quiet dignity will offer a wholesome contrast to the congested traffic area around it and complement the wide use of brick in the surrounding buildings and sidewalk.



## RED LINE ARTISTS' EXHIBITION

The Hayden Gallery at MIT recently hosted an exhibition of the drawings and models by 20 artists commissioned by the MBTA for the four new Red Line stations. The exhibition opened on February 8 with Joan Mondale, wife of Vice President Walter F. Mondale, and Theodore Lutz, UMTA Administrator, as guests of honor. Mrs. Mondale stated: "The Arts On The Line project makes a sweeping statement regarding the place of art in our lives. It says that art does not belong only in museums or only in the homes of the wealthy. Art belongs to us all. Art is central to our lives; it's part of our daily routine. ... It's not just the thing, it is the essence of life. The work of the 20 artists who are here today will be seen by every person who rides the Red Line to work, to shop, to hospitals, to concerts. We may be amused, confused or touched by it. But it will be ours. Public art reflects the conscience and ideals of our generation."

The exhibition was open for five weeks and attended by over 5,300 people, one of the largest attendance records ever for the Hayden Gallery. Twenty-six guided tours to school children, professional groups and university seminars were conducted. The Hayden Gallery also administered two workshops for Somerville art teachers.

All in all, it was an extremely successful event. If any group was unable to attend the exhibition and would like to see a slide show of the artists' works, please contact Jennifer Dowley, Director, Arts On The Line, at City Hall, Cambridge, MA 02159 or call 498-9033.



Somerville Mayor Eugene Bruns (left) recently enjoyed his first tour of excavation underway beneath Davis Square for the construction of the Red Line's Davis to Porter Tunnel. Pictured with the Mayor, about to be hoisted into an access shaft to the tunnel, are left to right: Roger Borggaard, Project Manager for Perini Corporation for the Tunnel project; George Holland, Program Development Agent for the MBTA's Red Line Development Office; and Dan Kallis of the Coronet Restaurant in Davis Square.

## RED LINE TUNNEL SEGMENT BIDS UNDER REVIEW

The MBTA is reviewing bids submitted by 4 contractors May 9 for the Davis Square, Somerville to Harvey Street, Cambridge, tunnel segment of the Red Line Northwest Extension.

Apparent low bidder was the joint venture of J. F. White, Morrison-Knudsen and Mergentime, whose bid was \$32,775,027.00. The MBTA's engineers estimate for the job was \$33,875,261.00.

The Davis Square to Harvey Street Tunnel contract will consist of construction of a two-track tunnel, about 3,740 feet long. It will be a cut-and-cover tunnel, constructed through use of the slurry wall method and installation of soldier piles and wood lagging through Cameron and Mass. Ave. The contract will also provide for the construction of a two-way haul road from vicinity of Davis Square to the west end of Harvey Street, near Russell Field, for the transport of excavation materials. Also included in this work will be the removal of the railroad tracks and relocation of utilities crossing the construction area. Vehicular traffic along Cameron Ave., Mass. Ave., Cedar St. and Harvey St. will be maintained at all times.



Representatives of the MBTA's Red Line Development Office and Perini Corporation's Davis Square projects recently participated in a Career Day at Northeastern Junior High School in Somerville. Careers in the Construction Industry was the title of a multi-media presentation given by 80 7th and 8th graders by George Holland, Program Development Agent for the MBTA and a former Building Trades Business Agent (pictured far left); David Puza, Project Engineer for Perini's Davis to Porter Tunnel Project (third from left); and Richard Capello, Assistant Project Engineer for Perini's Davis Square Station job (second from left). The trio presented a film about jobs in construction, and talked about their own experiences in the construction field.

"It's not too early to begin thinking about your future," Dick Capello told the young people.

The Red Line representatives' participation was part of an on-going effort by the MBTA and its contractors to be active in school and community events and programs. This Career Day was set up by Julie Loftis, Career Education Specialist for Somerville Schools.

## BOSTON-LOWELL RAILROAD LINE NEARLY COMPLETED

Work associated with the improvement and upgrading of the railroad right-of-way from Boston to Lowell is expected to be completed in June.

The joint venture of J. F. White — Gateway Realty Trust is nearing completion of their \$13,689,395 contract to improve 23 miles of double track in order to divert railroad freight traffic from the Freight Cut-Off, through North Cambridge and Davis Square, Somerville, abandoned to permit construction of the Red Line Northwest Extension.

The work, begun in May 1979, included the upgrading and resurfacing of the 23 miles of double track, the upgrading of signals and communication systems in Somerville and Wilmington, the lowering of tracks under 13 bridges and raising of 6 bridges, pole line work and the installation of a new drainage system along the entire route, which passes through the communities of Somerville, Medford, Winchester, Woburn, Wilmington, Billerica, Tewksbury and Lowell and on into New Hampshire.

William McNall, Railroad Coordinator for the MBTA Red Line Project, and Ralph Hill, MBTA Area Engineer, have been overseeing the contractor's work under the direction of MBTA Project Manager, John Carey.

Says Mr. McNall about the work, "It was a very difficult job but done beautifully and well coordinated with railroad freight and commuter rail operations. We are well satisfied with the progress of this job."

## PROPERTY SURVEY PROGRAM OFFERED

The MBTA Red Line Development Office is still offering a property survey program to persons whose properties are in close proximity to Red Line construction.

Eligible property owners receiving the survey are visited by an MBTA consultant, who performs the inspection and documents the condition of the home or business with photographs and written text. The property owners receive a copy of the report.

To date, 150 properties in Cambridge and Somerville have been inspected and documented. This is in addition to properties surveyed by contractors, as a requirement of their respective contracts in each of their immediate work areas.

For more information about the program, contact George Holland at the Red Line Development Office at 628-1846 or M-B-T-A-R-E-D.

# The World's Longest Sidewalk SALE!

and it's all on the Red Line Extension

## RED RIDER SALE DAYS

**TUESDAY, MAY 27 - SATURDAY MAY 31** (raindate Saturday June 7)

There are 2.1 miles of fun and savings • Dozens of Merchants on the Line are holding big sales: DAVIS SQUARE, PORTER SQUARE, MASS AVE to HARVARD SQUARE • Musicians and street performers will add a festive note all week long •

Alewife

Davis Square

T



Porter Square

Get Discount Coupons And Win FREE Passes For The Museum of Transportation AT Participating Stores

Mass Ave

Harvard Square

ART SHOWS AND SALES

What Can You Say About A Juggler?

SALES

AND RED BALLS ARE HERE!

WIN Dinner For Two At The Elegant Hotel Sonesta Rib Room Over Looking The Charles River

Win A Red Bicycle And Red Roller Skates courtesy of SEARS ROEBUCK

SATURDAY MAY 31, THERE'S A GRAND PARADE AND THE LONGEST SIDE-WALK SALE

WIN MONTHLY T-PASSES

We're the Merchants on the Line. (M.O.T.L.)

We run stores, restaurants and professional offices in the areas affected by the Red Line Extension: Harvard Square, along Mass. Ave. to Porter Square, and Davis Square in Somerville. We have banded together to help ourselves and you, our valued customers, during the construction. By working with the MBTA we intend to give our communities special promotions, helpful information and community service projects. Watch for M.O.T.L. programs: sales, public performances, free drawings, free health tests and much more... Brought to you by your neighbors the Merchants on the Line.

THERE ARE BARGAINS, BARGAINS.....

FREE RIDES ON AN ANTIQUE FIRE ENGINE, FIEDLER I (T, TH, F 3-5 PM)

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**M.O.T.L.**  
THE MERCHANTS ON THE LINE

Look for this decal:

Participating M.O.T.L. (Merchants on the Line) have complete information. Plus big sales and entry blanks for the prize drawings.

sale  
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Look for these Red Line Tags:

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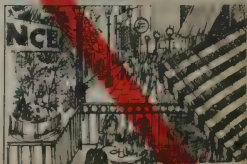
**WIN! A TRIP FOR (2) TO MONTREAL**

Round Trip Jet  
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The QUEEN  
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LOOK FOR ENTRY BLANK COUPONS FOR THE PRIZE DRAWINGS!



# RED LINE NEWS

Northwest Extension

Number 12

Summer 1980

## FORMING A TUNNEL

There are now two tunnels, 75 to 120 feet beneath the street surface, extending from the base of access shafts at Grove Street in Somerville to the subsurface of the Porter Square Shopping Center in Cambridge. Perini Corporation, contractor for the Davis to Porter Tunnel, recently completed excavation of the inbound and outbound tunnels between Grove Street and Porter Square, and has only about 200 lineal feet remaining to excavate between Grove Street and Davis Square. Meanwhile, the contractor has been preparing for and pouring concrete to line the tunnels. At left, right is a section of the outbound tunnel, between Grove Street and Summer Street in Somerville, now completely concreted. The photograph, taken in June, shows the final stages of the concreting operation. The bottom of the tunnel and the lowest part of the arch, called the curb and starter wall, has been cast. The steel reinforcement for the arch has been installed and is ready for forming and then casting. Note the tracks, which are work tracks used to move equipment to install forms. Please see following pages for additional construction photos and a chart of construction contracts, awarded and scheduled.

Photo by James E. Miller, MBTA



## MOTL Joins Davis Square Merchants for Annual Sidewalk Sale

The annual Davis Square Sidewalk Sale always offers area shoppers excellent values. This year the Merchants on the Line are working with the Davis Square Merchants Association to ensure it also offers fun and services for all ages.

The sale will involve many Davis Square stores and will run from Thursday, August 7 through Saturday, August 9.

According to Arthur Pickett, Manager of Cummings' women's wear and one of the organizers of this year's event, "We want to be good neighbors as well as help our customers get honest values. The entertainment and services we will sponsor this year in connection with the sale will help meet those goals. We also want shoppers to realize that despite some disruption because of

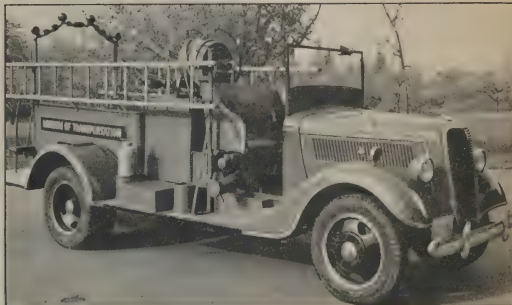
Fiedler #1, a 1937 fire engine which was donated to the Museum of Transportation by the late maestro and fire buff Arthur Fiedler, will be in Davis Square Saturday, August 9 to give free rides to children as part of the Davis Square Sidewalk Sale. Photo by w. litant

MBTA construction, Davis Square is still an excellent place to shop."

The highlight of the event will be a free drawing open to all Davis Square shoppers. The grand prize will be a year's subscription, valued at approximately \$300, to Star Case, the over-the-air pay TV service that offers premium movies, Las Vegas-type specials and other entertainment, uncut and without commercials.

Several cash prizes will also be awarded. Registration blanks will be available from all participating merchants. Entrants do not have to be present at the Saturday drawing in order to win.

The American Red Cross will present three days of community education and services during the sale. The ARC's disaster volunteer teams, which were cited by the City of Somerville for their outstanding work in setting up evacuation centers after poisonous gas spread over east Somerville on April 3, will be back — under more pleasant conditions — to talk about their work. The Red Cross will also have a bloodmobile in the square from 11 am to 3 pm on Saturday, and its safety services department will demonstrate CPR, first aid and other services.



## Davis Square Sidewalk Sale Prizes

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Tel No. \_\_\_\_\_

Deposit this coupon at participating stores



### Property Survey Program Offered

The MBTA continues to offer property surveys to Somerville and Cambridge property owners whose homes and businesses are in close proximity to Red Line construction activity. Inspection reports, including color photographs, are prepared by an MBTA consultant and copies are made available to the property owners at no cost.

Affected residents may obtain surveys by applying to George Holland, Red Line Development Office, 55 Day St., Somerville, 625-1545



Excavation of Davis Square Station is beginning now that a good deal of preparatory work has been completed. Pictured is work associated with the construction of a box culvert, which runs 630 feet long along the south side of the station. This culvert has now been completed. Slurry wall installation also has been completed for Davis Square Station. During initial phases of station excavation, the contractor, Perini Corporation, will be installing timber decking over College Avenue and Holland Street for further station excavation and construction. Parts of the decking have been installed.



#### Published by:

Massachusetts Bay Transportation Authority  
Red Line Northwest Development Office  
58 Day Street  
Somerville, Massachusetts 02144

Francis M. Keville  
Assistant Director of Construction—NW

John Carey  
Project Manager  
(Davis Square to Alewife)

George Way  
Project Manager  
(Harvard Square to Davis Square)

Peter Lynch  
Project Manager—Northwest Development

Writer and Coordinator:  
Charles D. Pizzo  
Special Assistant for Public Information—  
Red Line Northwest

FOR MORE INFORMATION, CALL:  
M-B-T-A-R-E-D or  
K2R-1848

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Maintaining subway activity amidst construction activity is one of the most complicated aspects of building the new Harvard Square Station. A significant step in preparing for demolition of the existing station and construction of the new is the opening of a temporary subway station, which basically is a matter of switching the train platforms to the south side of the tracks so the contractor, Perini Corporation, can work on the north side free of passenger activity. Demolition within the platform area is required for construction of the temporary platforms. Underway is demolition along the station's wall, right along the tracks, and in the area of the outbound track bed, upper left corner, just above the platform. Despite the demolition, several passengers wait for an inbound train.



Soft ground tunneling, required for a portion of the Harvard to Porter Tunnel, is now underway from Flagstaff Park in Harvard Square, heading north beneath Massachusetts Avenue. Above is the tail end of the soft ground tunneling equipment whose hydraulic jacks are pushing through the ground to excavate the tunnel. The joint venture of Morrison-Knudsen, White & Mergentime is also excavating this tunnel from shafts in Porter Square and at Garfield Street on Massachusetts Avenue. Excavation of those sections of tunnel is being done through solid rock, requiring use of the conventional mining method of drilling and blasting.

Photos by James E. Miller,  
MBTA Construction Photographer

## MAJOR CONSTRUCTION CONTRACTS

Contract	General Contractor(s)	Awarded	Amount	Description	Estimated Compl. Date	Current Status
Harvard Sq. Station	Perini Corporation Framingham, Mass	Feb. 1979	\$71,282,020	Cut and cover construction of temporary and permanent stations.	May, 1984	Slurry wall installation nearing completion, constructing Holyoke Temporary Station, installing timber decking & permanent station
Harvard to Porter Tunnel	Morrison-Knudsen, J.F. White Contracting Co. and Mergentime Corp., Cambridge, Mass (joint venture)	Oct. 1978	\$47,479,571	Twin bore subway tunnels each 4,418' long in rock and soft earth, including 4 shafts. Prep Cambridge City Dump for excav material	Sept. 1981	Four shafts and a total 3,900 feet of tunnel excavated, excavation continues; concreting of tunnels underway; Dump receiving materials
Porter Square Station	Slattery, McLean, Grove Maspeth, N.Y. (joint venture)	Jan. 1980	\$43,887,900	Build subway using tunneling and cut-and-cover methods, with mezzanine connection to B&M Fitchburg Line station	Sept. 1982	Excavating tunnel portion of station; relocating utilities and installing earth support systems
Porter to Davis Tunnel	Perini Corporation	Dec. 1978	\$24,384,050	Twin bore subway tunnels each 2,857' long in rock and soft earth, incl. 3 shafts. Haul excavated material to Cambridge Dump	Dec. 1980	Three shafts and a total 5,500 lineal feet of tunnel excavated, concreting underway, excavation continues
Davis Sq. Station	Perini Corporation	July 1979	\$29,223,160	Build subway station by cut-and-cover method with slurry walls as support	Sept. 1982	Slurry wall installation completed; 5' x 7' drainage structure completed; 15% of excavation; 15% of timber decking installed
B&M Main Line Impr. Overhead Clearance	J.F. White Contracting Co., Newton, Mass	Apr. 1979	\$13,658,359	Lower tracks under bridges & raise bridges, upgrade 40 miles of track to divert freight trains to Lowell line	Completed	
Davis to Harvey St. tunnel	J.F. White Contracting Co., Morrison-Knudsen and Mergentime Corp (joint venture)	June 1980		Cut and cover double track tunnel 3,740' long using slurry wall	June 1983	Clearing of brush completed; working on haul road; strip loam from Russell Field; Demolished warehouse portion of Hartnett Bev. Co. installing fencing
Harvey St. to Alewife Station		Winter 80/81 Est		Cut and cover double track tunnel 670' long using slurry wall		Under design
Alewife Station & Garage		Fall 1980 Est		Const. of underground station & short tunnel sections with 2,000 car garage		Reviewing final contract documents
Alewife to Route 2 tunnel — Tail track		Winter 80/81 Est		Cut and cover three track tunnel 1,200' long		Under design

In addition, there will be subsequent contracts for trackwork, power, signals and communications, and mechanical equipment. As of August, 1980, 19 contracts are underway or completed. 14 remain to go out to bid



Safety team members James McCall, Michael Creamer and Elwyn Kinney display a certificate of appreciation, which was recently presented to McCall and Creamer by the Cambridge Chapter of the American Red Cross for their first aid and CPR training program.

## Red Line People

### Safety Team Receives Awards for First Aid Training Program

Nearly 60 of the supervisory and building trades workers constructing the Harvard to Porter Tunnel are able to administer on-the-scene first aid.

More than 40 are trained to provide cardio-pulmonary resuscitation (CPR). And even more workers are being trained to respond to emergency first aid situations because of the efforts of the project's enthusiastic Safety Team.

Michael Creamer, James McCall and Michael DiSario, under the direction of Safety Supervisor Elwyn W. Kinney, have expanded their roles as medical attendants and safety inspectors for the Harvard to Porter tunnel contractor, a joint venture of Morrison-Knudsen, White & Mangente. Not only are they providing round-the-clock medical coverage at all sites associated with the tunnel project, but they're training co-workers to assist.

Creamer and McCall, who became certified as instructors and began the training program last fall, were presented earlier this summer with Certificates of Appreciation by the Cambridge Chapter of the American Red Cross.

"They're two of the best instructors I've seen in a long time," says Heather Ratcliff, Director of Safety Services for the Cambridge Chapter, which has sponsored the program by providing equipment, the instructor training for Creamer and McCall and lots of encouragement. "I think what they're doing over there is really superb."

Creamer and McCall, both formerly military medics, say they began the program because they felt strongly that having workers at all project locations trained to respond to first aid emergencies would certainly better the chances of a victim of any accident, which, due to the nature of tunneling construction, is always a threat.

"It's so important that the first person at the scene knows how to administer good initial treatment," says Creamer, a South Boston native who, following a stint with the U. S. Army as a medic with the Airborne Rangers in Vietnam, has worked as a medical attendant for Morrison-Knudsen on three major tunneling jobs as well as a power line project in Zaire, Africa. "This job is so spread out that having workers at all locations provides us with a real stop gap should anything happen when we (the Safety Team) are not where it occurs."

The courses, in both first aid and CPR, were offered initially only to supervisory personnel, according to Creamer. But an interest shown by other workers soon encouraged the formation of additional classes and the expansion of the program to include the trades. As a result, 47 persons have received certification in first aid from the Red Cross, and 40 have been certified by the American Heart Association after completing training in cardio-pulmonary resuscitation.

"We now have a waiting list of people signed up for classes," says

Creamer, who explains that, unfortunately, there can be only eight students per class. "We've had to develop a technique for acceptance. Each time, we take representatives of the various trades and various project sites. This way we're able to cover all bases."

McCall, a Somerville native who was a U. S. Navy medic at Chelsea Naval Hospital and a medical attendant with local and Boston ambulance services and hospital emergency rooms before joining Morrison-Knudsen, says he's really pleased that the program is working out so well.

"The guys seem to appreciate it and we figure this program is serving a two-fold purpose," he says. "We're getting our first responders and they're getting the general benefit of being trained in first aid and CPR." McCall notes that the importance and value of such training is ever increasing as State law now requires all fire department rescue personnel be trained as Emergency Medical Technicians.

In addition to teaching classes, Creamer and McCall and their newest co-worker DiSario, a former Saugus resident who served as a medic with the U. S. Air Force's Search and Rescue Specialists unit and medical attendant with area ambulance services before joining the company, stand ready to provide emergency expertise during all work shifts and at all sites. They also serve as additional safety inspectors, constantly checking that all safety precautions are being observed and testing the air in the tunnels to be sure that it is at safe levels for workers.

Safety Supervisor Kinney is also a professional engineer, says he's proud of his team, and that its members' qualifications are reflective of Morrison-Knudsen's sophisticated safety program. "I insisted at the start of this job that we have fully-qualified first aid attendants," he says, noting that it is no coincidence that all three attendants are former military medics. "We (Morrison-Knudsen) strive to go beyond government safety requirements. And it's only fair to give a lot of credit to the management of this project. We have their full support in safety projects."

Kinney feels the Creamer-McCall training programs are making a good overall program even better. "I'm proud of them for taking the initiative and for putting in the extra effort to make it so successful."

Safety Director Ratcliff of the Red Cross shares that sense of pride. "I just love wandering around Cambridge and seeing little decals on bronze hard hats," she says, explaining that as workers are certified, they're given decals to signify that certification. "It always makes me feel rather proud."

## Poems for the Buses

Poetry and paintings created by more than 90 Cambridge students from the M. E. Fitzgerald School in North Cambridge are being featured on cards in North Cambridge buses and trackless trolleys.

Focusing primarily on the children's experiences riding the MBTA's Red Line and observing construction of the Red Line Northwest Extension, the poems and paintings are the result of an Arts On The Line project. Nancy Raine, a Cambridge poet, spent 15 weeks in residence at the Fitzgerald School, working closely with art teacher Joseph

Murphy helping the children develop the poems and paintings following field trips on the subway and to construction sites.

The project, which was sponsored jointly by the MBTA, the Artists Foundation, the Cambridge Arts Council and Cambridge Public Schools, is considered important because it gave children living near the subway route the opportunity to respond creatively to the construction. Educationally, it was valuable for the children to work on a project requiring both verbal and visual skills.

A sampling of the poems written by North Cambridge school children

I am very tall in the sky when you push  
a button I go even higher. And then  
I go to the ground I get big chunks  
of land with my jaws And  
I do it all day, until I'm done

Aaron Lewis

### Riding On A Train

feels like you're a tennis ball  
bouncing back and forth  
wishing you would stop

Michele De Vasto

### The Drill

Deep  
deep into the ground  
it  
will dig  
spinning and twirling  
deeper  
deeper  
spitting  
grinding  
all the dirt  
up  
in the air —  
to dig a hole

Lance Green

### Wheels

I'm rolling on the track  
Down in the tunnel  
I'm slipping down the track  
Finally the train stops  
I fall asleep  
I'm dreaming about another day  
on the track

Ellen Danehy

## Display Panels Show Present and Future

The Story of the Red Line Northwest Extension — Past, Present and Future — is the subject of a series of display panels to be installed at construction sites along 2.1 miles of the extension's route later this month.

The panels, which are plexi-glass covered displays 4 by 8 feet and 2 by 4 feet, contain written descriptions, photographs, diagrams and charts that explain and illustrate construction underway now, as well as to depict what the new Red Line Stations will look like when completed. Panels have been developed for three of the four new stations: Harvard Square, Porter Square and Davis Square. Among other subjects covered are: blasting; how a tunnel and shafts are built; what happens to the rock and soil excavated for Red Line construction; soft ground tunneling; and how and why the slurry wall method is being used for construction.

The panels were developed by the Arts On The Line Program through a joint effort of the MBTA's Red Line Development Office and Cambridge Arts Council. A team of four persons — Christopher Barnes, photographer; George Vogt, designer; Jennifer Dowley, Arts On The Line Director and project administrator; and Charlene Pizzo, MBTA writer, worked on the panels during the past few months. The project was carried out in hopes of giving the public a better understanding of the complexity of the Red Line Northwest Extension project and in bringing to light some of the more interesting and exciting aspects of the construction.

The panels will be installed at the following locations: Harvard Square, the corner of Jarvis Street and Massachusetts Avenue, the corner of Garfield Street and Massachusetts Avenue, Porter Square, the intersection of Grove Street and Highland Avenue in Somerville, and Davis Square. They will be put up along side up-dated fliers describing construction at various sites. The fliers, "Construction Notes for Sidewalk Supers," are produced and posted at

sites by the MBTA's Development Office.

Before the panels are permanently installed, they will be put on display at locations in Harvard Square, Massachusetts Avenue, Porter Square and Davis Square. These special previews will be open to the public. Watch your newspapers for specific times and locations.

### Annual Sidewalk Sale

Continued from page 1

The Davis Square Sidewalk Sale will also provide entertainment for all ages. Summerfest, the City of Somerville's summer entertainment program, will sponsor a 6:30 pm Thursday performance by the "GunSetters," a thirty-two member singing group accompanied by a seven-piece band. On Saturday morning youngsters can enjoy free rides on "Fiedler 1," the Museum of Transportation's antique fire engine. (The engine was given to Maestro Arthur Fiedler, who was also an avid fire buff, who in turn donated it to the museum.)

Somerville's elders will also be able to share in the festivities, according to Robert McElreath, the City Director of Elder Affairs. Vans from the city's United Seniors Transportation System will provide transportation between Davis Square and the city's elderly housing projects.

Pickett is being assisted by Frank Stellato, Executive Director of the Somerville Chamber of Commerce, and by the Merchants on the Line. Merchants on the Line was organized in 1978. It has sponsored free community services, worked to increase the amount of parking in the areas affected by the Red Line extension, and conducts special sales promotions. The Davis Square area's representatives to the Square are Paul Errico of Errico Photography Studio and Honey James of James Ltd. Jewelers.





# RED LINE NEWS

Northwest Extension

Number 13

Autumn 1980

## Scheduling: A Major Key to Tunnel Construction

by David Smith

"Scheduling," Roy Wallis says. We are sitting in a house on Harvey Street in North Cambridge, almost the last house before Harvey Street peters out into empty lots and the scraped terrain of an industrial part of town. Until April, 1980, the Boston & Maine freight trains rattled by, a few feet from the back door. Now the tracks have been uprooted, and it's Roy Wallis's job to see that a cut-and-cover subway tunnel 3800 feet long is in place beneath the right-of-way by September, 1982.

Wallis, the project manager for White, Morrison-Knudsen, and Mergentime, has the kind of experience that ought to make an assignment like this one almost routine. British-born, with a Britisher's characteristic precision of speech and the distinct vestiges of a British accent, he is a veteran of more than 30 years in heavy construction on this side of the

See Scheduling, page 8

The cut-and-cover tunnel between Davis Square, Somerville, and Harvey Street, Cambridge requires the construction of about 7,000 feet of slurry wall, and, as Project Manager Roy Wallis says, requires a good deal of scheduling and planning. Above, left, right etc., workers install the guidewalls for a section of the underground, slurry wall in the area west of Thorndike Street, on the south side of the railroad right-of-way. At left is a temporary retaining wall, required to provide earth support during construction of the 3,740 foot-long Red Line Northwest Tunnel segment.



## King Announces \$85M Grant



Governor Edward J. King announced the receipt of \$85 million for Red Line Northwest Extension construction amidst construction sites for the new Harvard Square Station. Among those joining him for the announcement were: (from left to right) Secretary of Elder Affairs Thomas Mahoney; Rita O'Connor, Administrative Assistant to Lt. Governor Thomas O'Neill; Rep. Marie Howe of Somerville; Sen. Francis X. McCann of Cambridge; Richard J. Dempsey, MBTA Director of Construction; and Barry M. Locke, MBTA Interim Chairman.

Governor Edward J. King recently announced the receipt of an \$85 million federal construction grant for the Massachusetts Bay Transportation Authority's (MBTA's) \$19.5 million Red Line Northwest Extension from Harvard Square to Alewife Brook Parkway.

The award of this grant will allow most of the remaining construction contracts for the 3.2 mile extension to proceed. The MBTA has already received \$358 million in federal funds for the transit project and approval of an additional \$60 million by the Urban Mass Transportation Administration (UMTA) will complete the federal government's participation in the project.

"Construction of this transit extension in Cambridge is an important part of the Commonwealth's program to offer improved and expanded transportation services to residents," Governor King noted. "In addition to offering new transit services to thousands of commuters, the construction efforts will create 3,000 jobs for area residents."

Acting Transportation Secretary James O'Leary and Interim MBTA Chairman Barry M. Locke joined Governor King at a news conference in Harvard Square to announce the grant award.

"The MBTA is in the midst of an aggressive construction program to provide needed transit services to the public," Locke explained. "With completion of this extension in 1983, nearly 10,000 daily auto trips will be converted to transit, saving Massachusetts commuters more than 1.7 million gallons of gasoline yearly."

The single major contract award under this new grant, will be for the \$74 million Alewife Station and

2000-car parking garage at Alewife Brook Parkway and Route 2. Bids are scheduled for opening on October 30. By the end of 1980, the MBTA expects to award nearly \$100 million in construction contracts for the Red Line Extension, including the Alewife contract.

"In addition to construction jobs generated, this project will provide more than 30,000 other employment opportunities as a direct result of the project," O'Leary said.

"This is a major contribution to Governor King's efforts to generate jobs for Massachusetts residents."

Construction on the extension began in 1976. Under construction are stations at Harvard and Porter Squares in Cambridge, Davis Square in Somerville and tunnels from Harvard Square to Porter Square, Porter Square to Davis Square, and from Davis Square to Harvey Street in Cambridge. (Please see Construction Update for a photographic display of work underway in conjunction with these projects.)

More about . . .

**Arts on The Line**

page 2

**Red Rider Animal Fair**

page 3

**Red Line Construction**

pages 4, 5, 7

## Arts On The Line

The four new stations on the Red Line Northwest Extension have been designed to be efficient and attractive, as well as pleasant places for people to pass through or wait for their trains and buses. In designing the stations, architects sought to create atmospheres of openness and pleasantness, using sky-lights, glass, color and other architectural enhancements.

The atmospheres of these stations will be enhanced even more with artwork. The MBTA, through its Arts On The Line program, has commissioned twenty artists to create permanent artwork to be incorporated into the interiors and exteriors of the stations. These works include murals, sculpture, mobiles, tilework and interesting amenities such as unusually shaped wooden benches. To provide an idea of the artwork planned, the "Red Line News" has been featuring photographs of each artist's work in recent editions. Below are four more of the works planned for the stations with a brief description of each:

(T)



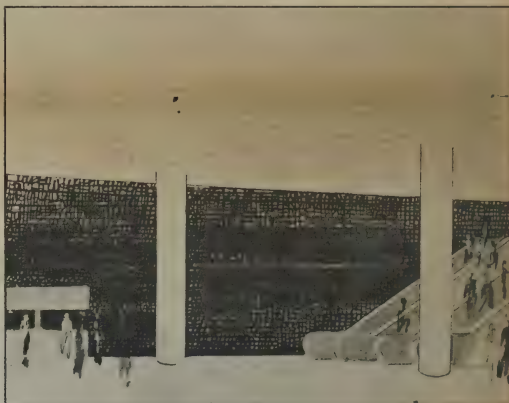
**Alewife Station**

A mural, combining the arrival of rapid transit in the Alewife area and its past as an agricultural area, will be painted by Joel Janowitz on a 10 foot by 20 foot wall at the end of the busway in the Station. Shown is a watercolor of the interesting mural, which depicts cows looking through the windows of a rapid transit train.



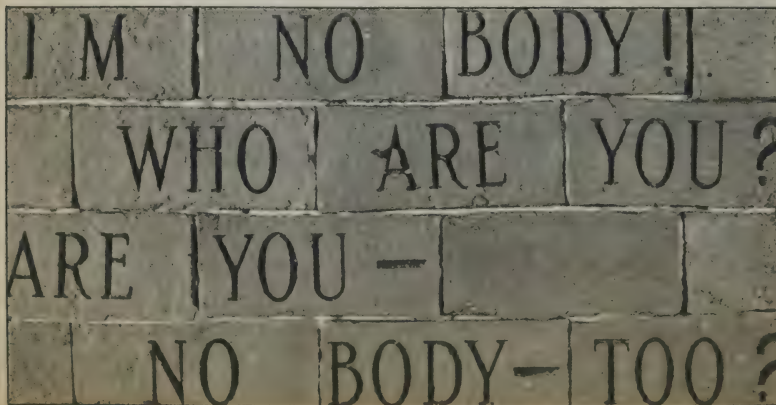
**Porter Square Station**

A granite basin, containing statues of small wildlife, will be created by Wil Reimann for the pedestrian plaza outside the Station. Shown is a drawing of the basin with a snapping turtle, which will be created from bronze.



**Harvard Square Station**

A 100-foot-long blue glass back-lit mural will be created by Gyorgy Kepes and incorporated on the Station's new bus tunnel wall. The photograph, by Herb Engleberg, shows a rendering of the mural and its relationship to the Station's escalator.



**Davis Square Station**

Poetry, including this excerpt from Emily Dickinson's famous poem, will be sandblasted in 2-inch letters into the floor bricks of the platforms, passageways and headhouses of the Station. Poems by 11 Massachusetts poets were selected for this unique project, which is expected to be a popular feature of the Station.



## Live Animals Attract Thousands

Thousands of children and children-at-heart enjoyed elephant and camel rides, petted baby goats and llamas, and benefitted from a wide variety of shopper savings during the recent Red Rider Animal Fair, held in the Red Line Northwest Extension construction area.

Sponsored by Merchants On The Line, a coalition of retailers whose businesses are located along the construction route, the Red Rider Animal Fair drew animal lovers of all ages to sites in Harvard Square, Porter Square and Davis Square.

Representatives of the R. W. Commerford and Sons Circus, whose circus and animal fairs have been the focus of enjoyment at events such as the Macy Day Parade and festivities held on the White House grounds in Washington, D.C., reported that well over 3,000 ride tickets were sold during the three-day fair. Many of those tickets were purchased with discount coupons which were available at stores participating in the promotion.

Simon Shapiro, Chairman of Merchants On The Line and a Porter Square businessman, was pleased with the turn-out.

"I saw smiles on children's faces," Shapiro said. "I'm happy that Merchants On The Line was able to offer the community a real source of recreation and enjoyment."

A daily feature of the fair was an animal parade between Porter and Harvard Squares and in Davis Square. Elephant, camel and pony rides at Porter and Harvard drew lines of animal lovers. A wax museum, an organ grinder with a pet monkey, and giant and midget horse shows were popular events in Harvard Square. Petting zoos in Davis Square and Porter Square were well-attended by persons of all ages.

Another feature of the animal fair was its tie-in to the Ringling Brothers and Barnum and Bailey Circus, currently performing at the Boston Garden. Coupons for tickets to the famous circus were deposited in participating stores in the construction areas. More than 4,000 coupons were deposited. Winners of tickets, drawn at random from each of the four areas, were: Linda Butland of Somerville, Jennifer DiCenso of Medford and Michael DeAmelio of Malden, all of whom deposited their coupons in stores in Davis Square; Bobby Alford of Cambridge, Marcia Werner of Watertown and William Hartford of Arlington, whose coupons were drawn at Porter Square; Elizabeth Cobb of Cambridge, Lisa Ronthal of Brookline and Gordon Cooperstein of Belmont, whose coupons were drawn at stores on Massachusetts Avenue; and Evelyn Wolfson of Newton, Paul Benson of Brighton and Sandra Hegstad of Wellesley, who had deposited coupons at Harvard Square.



Petting zoo in Davis Square and Porter Square drew crowds of children of all ages.



Greeting a baby goat in the petting zoo at Porter Square are Paul Errico (left), Ed Murphy, both of Merchants On The Line, and George Holland of the MBTA's Red Line Development Office.



Richard and Ricky Scollay of Somerville took time out from their elephant ride to pose with Ed Murphy (left) of Merchants On The Line and George Holland of the MBTA's Red Line Development Office.



Michelle Giltzinger, and mother, Linda, of Danvers were among those who enjoyed pony rides in Porter Square.



Daily animal parades like this one along Massachusetts Avenue were a feature of the Animal Fair.



Smiling children and mothers were seen at animal fair locations throughout the three-day promotion.



Tickets to the Greatest Show On Earth, courtesy of Merchants On The Line, were the prizes awarded in conjunction with the Red Rider Animal Fair. Winners' names were chosen as a result of drawing tickets deposited in participating stores during the three-day promotion. (Above, below etc.) posing for a group shot are (from left to right): winner Marcia Werner with Amy, 3 months, and Matthew, 3, of Watertown; Linda McKenna of the Fashion Show clothing store of Davis Square, where a winning ticket was deposited; winners Linda and Richard Butland of Somerville; winner Karen DiCenso with Jennifer, 8, of Medford; Honey James of James LTD jewelry store in Davis Square and an area representative for Merchants On The Line; winner Lisa Ronthal, 10, of Brookline; Ringling Brothers clown Barry Lubin; winner Bobby Alford, 8, of Cambridge; and winners Elizabeth of Ronald Cobb with T.J., 17 months, of Cambridge.



▲ By early next year, a second temporary subway station, **Harvard-Holyoke**, will be opened to serve **Harvard Square**. The existing station will be closed for demolition and construction of a new facility. Perini Corporation, contractor, is preparing for the opening of the temporary station, which will shift passenger activity to the south side of the existing train tracks while station work continues on the north side. Shown is the temporary outbound platform on the left side of the tracks, which is nearly completed. On the right side of the tracks and departing train is the existing platform. Work is also well underway for construction of the inbound temporary platform on the lower level of Harvard Station. A complicated aspect of the new Harvard Station project is the requirement to maintain subway and bus service while the new station is built.

► Installing steel rebar, constructing and installing concrete forms and pouring concrete are the major activities underway in the **Davis to Porter Tunnel** segment as the contractor, Perini Corporation, moves to complete sections of the outbound tunnel between access shafts at Grove Street and Porter Square. At the right, left etc. is a section of the tunnel between the access shafts and a vent shaft at Summer Street in Somerville that has been completed. Further south in the tunnel, concreting is in various stages of construction. Meanwhile, clean-up operations, in preparation for concreting, continue in the inbound tunnel between the Grove Street shafts and Porter Square. Between Grove Street and Davis Square Station, where mixed face ground conditions are found and require a combination of mining methods, approximately 60 feet of tunnel remains to be driven.





◀ Excavated Flagstaff Park will be the location of the trainrooms for the new **Harvard Station** and the connection between the station and the new Red Line tunnels heading north. Shown are the completed tunnels, outbound at left and inbound at right. They are being water-proofed and will be covered with earth during the next few months. Just beyond the tunnels is the concrete wall, still encased in forms, of the trainroom. Beyond the wall, a good deal of activity, including the placement of reinforcing steel and forms for concrete, plumbing and electrical work, is underway for the trainroom. South of the park, the contractor is continuing to install timber decking for vehicular traffic on Massachusetts Avenue between the park and Brigham's. Beneath the surface, the contractor is continuing demolition of the bus tunnels and station excavation has begun.



► Rock excavation for construction of the **Harvard to Porter Tunnel** is continuing from an access shaft at the intersection of Garfield Street and Massachusetts Avenue. At the right, left etc., is a section of the rock tunnel, for which steel sets and cribbing (timber placed between the steel and rock) have been installed to provide temporary support until the tunnel is lined with concrete. A rock lift is used to install the cribbing. About 480 feet of rock tunnel remains to be driven. Further north in this tunneling operation, near Porter Square, the contractor, the joint venture of Morrison-Knudsen, White and Mergentime, is installing steel rebar, constructing and installing concrete forms and pouring concrete to line sections of the tunnels.



◀ Excavation is well underway for the construction of the **Davis Square Station**. The contractor, Perini Corporation, has excavated the 560-foot-long by 70-foot-wide station area to a depth of 20 feet beneath the street surface, and has begun excavation of the next level, which will bring the total station area to a depth of 30 feet. Excavation is done level by level so that steel bracing and tie-backs (steel rods installed through the station's slurry walls) can be installed to reinforce the walls and support the excavation. At the right, left etc. are the top level of bracing and pipe supports for excavation east of College Avenue, facing the Square and Holland Street.

▲ Timber decking, installed on parts of the surface of College Avenue and Holland Street, will allow normal vehicular and pedestrian traffic through Davis Square while **Davis Square Station** is excavated and constructed. At the right, left etc. are the steel beams to support timber decking on Holland Street. Since the photograph was taken, Holland Street has been decked over and opened to its full width. The decking on both Holland Street and College Avenue will remain until station construction is completed. At that time, new pavement will be installed.

# Red Line People

## Mary Norton

While the public sees hundreds of construction workers daily performing the immense amount of work required to build the Red Line Northwest Extension, few see the contingent of workers behind-the-scenes, performing the paperwork required to keep construction going.

The day-to-day operation of the project requires a variety of skilled professionals to handle everything from budget matters to resident complaints. And central to the coordination and administration of the Red Line Northwest is a multi-talented woman, Assistant Project Manager Mary Norton.

A 15-year-employee of the MBTA who has worked in both the Operations and Construction Departments, Miss Norton says she has difficulty trying to describe her job. She coordinates administrative matters between the Urban Mass Transportation Administration, the MBTA Project Office and headquarters in the Construction Department's headquarters for the MBTA in Boston. She writes and reviews change orders when there is a change in the method of construction or when additional costs are needed to complete a contract. She translates technical language into layman's terms for the MBTA's Board of Directors when action by that Board is needed. Miss Norton reports directly to Frank Keville, Assistant Director of Construction, who is in charge of the Red Line Northwest. Part of her responsibility is to keep him updated on the progress of all construction contracts for the project.

"It's such a multi-faceted job, I really have difficulty trying to explain it," says Miss Norton, who worked as an Administrative Assistant to the MBTA's former Director of Construction before joining the Red Line Project in May 1979. "I'm so deeply involved in the day-to-day operation, in so many areas."

Generally, Miss Norton describes her job as a real learning experience and as an opportunity to meet some wonderful people, who, she feels, are a credit to the Red Line Northwest and the MBTA.

"I am impressed every day by the level of professionalism of the field staff," Miss Norton says, referring to her daily dealings with the project's resident engineers, inspectors and junior inspectors. She explains that their professionalism is crucial in their supplying her with information required for administrative reports. "I think the most important part of my job is dealing with people," she says.

The Red Line Northwest is the first construction project that Miss Norton has been involved with on a day-to-day basis. "It's the magnitude of this project that continues to fascinate me. I really enjoy being a part of it."

A resident of Jamaica Plain, Miss Norton juggles her time with her duties on the project while studying for a Bachelor of Arts Degree at the University of Mass./Boston three evenings a week. She is a graduate of the Boston School of Business Education.

"I like what I do and enjoy what I'm learning," she says.



Mary Norton



Paul Ward

## Paul Ward

Paul Ward spends his week-nights installing temporary lighting and power for the Red Line Northwest tunneling operation underway beneath Massachusetts Avenue. But his days are spent in class at Boston College Law School, at home in Needham with his wife and three children, or in the Dorchester union office of Local 103 of the International Brotherhood of Electrical Workers (I.B.E.W.).

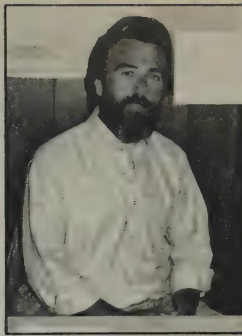
Joking about how he juggles his time, this Red Line worker says he doesn't mind such an active life because he loves being an electrician, enjoys being involved in the union and hopes to combine what he's learned from both in a future in a career as an attorney specializing in labor relations.

A journeyman electrician for nine years following four years in the extensive I.B.E.W. apprenticeship training program, Ward works with a crew on the graveyard (10:30 p.m. to 7 a.m.) shift for A & N Electric Co. of Saugus, a subcontractor for Morrison-Knudsen, White and Mengentime, contractor for the Harvard to Porter Tunnel of the Red Line Northwest Extension.

A & N's responsibility, Ward explains, is supplying power for temporary lighting for the tunnel operation. "We service the miners, moving the lights along as they excavate," he says, adding that A & N also is responsible for supplying power for electrically-powered equipment.

Ward explains that a master electrician or a sub-contractor with a master's license is employed by all contractors building a portion of the extension.

"The most important consideration in providing lighting for an underground operation is assuring that the temporary lighting is installed in a safe and workmanlike fashion to prevent any short circuits or grounds," Ward says, explaining that the existence of ground water in the tunnels poses a potential danger. For that reason, it's critical that qualified,



Frank Gallagher



Carol Dempkowski

licensed electricians and firms are involved, he added.

Ward joined the Red Line project in July as his first tunneling job. He has traveled on construction jobs throughout the country and worked in this area on such jobs as the new First National Bank Building in Boston and at the new University of Massachusetts Boston campus, all above ground.

"This is a completely unique experience for me," he says, noting that working underground involves a different set of time frames and methods from other construction jobs. "And I'm still fascinated by the engineering that goes into planning a tunnel."

Although he enjoys being an electrician because he "enjoys the people in the industry," Ward says he's looking forward to next June when he takes his bar exam after completing Boston College's Law Program. A 1978 Summa Cum Laude graduate of Boston College, with a major in accounting, Ward is now in his third year of Law School. Incidentally, one of his classmates is Somerville Alderman Mark Cremin, who has taken an active role in the Red Line Northwest project as a member of the Davis Square Task Force.

Ward also serves as treasurer for Local 103 of the I.B.E.W., a post he's held since his election in 1978.

"I come from a strong union family," Ward says, citing his grandfather, William Edmund Ward, who was the business manager for the Old Brewery Workers Union in Boston, and his father, William Ward, who was the International Vice President for the American Federation of State County and Municipal Employees for 20 years.

Paul Ward is enthusiastic when he talks about his background and his future plans. Considering both and the enthusiasm he demonstrates, it's likely that this interesting personality will be successful in the goals he hopes to achieve.

## Frank Gallagher

Twenty years of construction experience, including tunnel building and monitoring, is the background that Frank Gallagher brings to his job as Senior Inspector for the MBTA on the Davis to Porter tunnel segment of the Red Line Northwest Extension.

Gallagher, who works out of the MBTA's Red Line Project field office in Davis Square, knows what's involved in constructing a tunnel as well in making sure construction is done according to specifications because he has worked in both capacities.

As a member of Local 88 of the Tunnel Workers Union, Gallagher worked for seven years as a miner (tunnel worker) and hydraulic shield operator in the Boston area on several soft ground tunneling jobs, including the Calahan Tunnel and the Ruggles Street MDC Sewerage Tunnel. He also worked on the construction of hard rock tunnels, including the MDC Sewerage Tunnel at Turtle Pond and the South Berlin MDC Water Tunnel. In 1969, Gallagher went to work for the MBTA as an inspector. His MBTA inspection assignments have included the reconstruction of the Green Line roadbed and track and the installation of turnouts and crossovers at the Riverside Yard; reconstruction of the Dorchester Branch (Middle Division) right-of-way; and several other projects involving rail installation, bridge repairs and other improvements.

As Senior Inspector for the Davis to Porter Tunnel, Gallagher spends his work hours in the tunnels beneath Davis Square watching and checking all phases of operations by the contractor, Perini Corporation.

"My responsibility is to make sure the job is done right," that construction is done according to plans and specifications," Gallagher says.

An inspector, he explains, must know what work is to be done and why it must be done in a certain way. Observing and being able to anticipate any possible construction problems is another important aspect of the job, he said. "And it's important that the inspector is familiar with the workers and is able to communicate with the foremen to get the work done properly."

As a former miner, Gallagher feels a comradeship with tunnel workers because he understands the job and why miners view their work.

"I see familiar faces down there in the hole," he says, explaining that some of the miners he worked with years ago are working here. "They're a good bunch of guys."

He says he relies heavily upon what he learned during his years as a miner, especially developing and practicing good safety habits.

"Safety is paramount down there," the inspector says, referring to the dangerous nature of tunnel work.

"Legally, safety is the contractor's responsibility, but a good inspector can point out possible sources of danger," Gallagher says he does all he can to help junior inspectors, who are new to tunnel work, and young miners to become more safety conscious.

A Dorchester resident originally from New York, Gallagher enjoys basketball and sailing as hobbies. His educational background includes the completion of a Surveying and Construction Program at Wentworth Institute, and the receipt of a Bachelor of Liberal Studies from the Evening Division of Boston University, where he completed an Interdisciplinary Study in English Literature and Sociology.



## Carol Dempkowski

It's not uncommon for Carol Dempkowski to make negative comments about Red Line Northwest construction. And it's not uncommon to see her at odds with representatives of the MBTA and its contractors and consultants. For Mrs. Dempkowski is a member of a large group of Davis Square area residents who have taken an active role in ensuring that the Red Line Extension is constructed through their neighborhood in a manner that is not detrimental to that neighborhood.

Mrs. Dempkowski is a member of the Davis Square Task Force, a group that meets monthly with the MBTA, its contractors and consultants to resolve issues arising from construction underway now and in anticipation of the subway opening in the future.

"I'm concerned about the effects of this construction, and I'm interested in keeping an eye on what's going on," says Mrs. Dempkowski, who became involved with the Task Force when she and her husband purchased their home on Hawthorne Avenue. "And I'm concerned that the Red Line doesn't disturb the quality of the neighborhood when it's done."

Mrs. Dempkowski began attending meetings and was soon taking an active role. She is as one of the Task Force's rotating chairpersons, participated on the Art Selection Committee for Arts On The Line, which resulted in artworks being selected for Davis Square Station, and became the chairperson of a special committee appointed to develop criteria for noise and vibration during the operation of the Red Line Northwest Extension.

This Noise and Vibration Committee spent several months meeting with acoustical engineering consultants, reviewing noise and vibration criteria and making trips to various points along the existing subway system for on-site demonstrations of noise levels. Subsequently, the committee recommended criteria for noise and vibration levels which following lengthy negotiations between the City of Somerville and MBTA, are now being reviewed by the MBTA.

Mrs. Dempkowski says she feels the review process is taking all too long, but is hopeful that acceptable criteria will be forthcoming. "I'd like to stop worrying about it," she says. "I'd like some guarantees."

In addition to her work with the Noise and Vibration Committee, Mrs. Dempkowski has participated in a series of issue-resolving efforts that the Task Force and representatives of the MBTA have focused attention on during the past two years. The results of these efforts included a property inspection program for property owners, a process for damage review to determine validity of property damage claims and prompt resolution of construction complaints and concerns of many individual residents.

An interesting result of Mrs. Dempkowski's involvement is her recent return to school — to Tufts University to seek a degree in mechanical engineering. Through her work on the Noise and Vibration Committee, Mrs. Dempkowski, a graduate of Emanuel College with a Bachelor of Arts in physics, says she had the opportunity "to meet people she might not have met in other circumstances." Among those she met was Lawrence Copley of Copley Associates, an acoustical engineer, who after discussions of technical matters, suggested Mrs. Dempkowski look into the field of engineering as a personal career opportunity.

"It was a field I had never even considered before," Mrs. Dempkowski says, adding that she is looking forward to an interesting career in engineering.

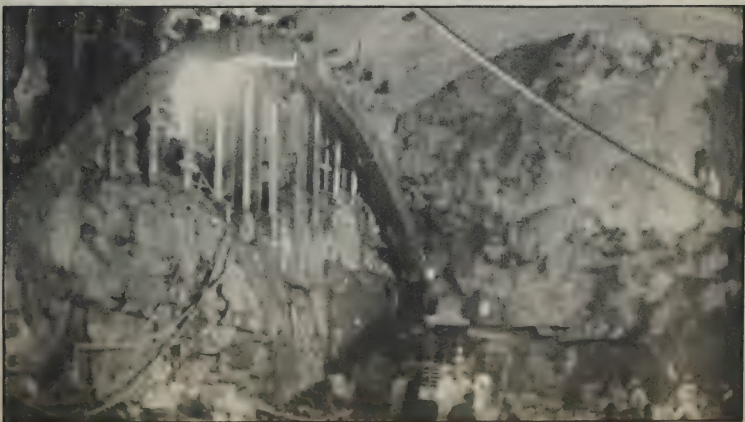
## Construction Update Porter Square Station

It took a good deal of ingenuity and mechanical muscle when two 100-foot-long steel arches were recently installed in a cavern, 125 feet beneath the surface of the Porter Square Shopping Center, in order to support the rock excavation of the trainroom for Porter Square Station.

The giant arches, each weighing 40 tons, will be the main support for the portals of the trainroom. To install them, the contractor, Slatery-MacLean Grove, lowered one-half of each arch down a shaft to the excavation below with a crane at the surface. The large sections then were dragged through the tunnel to the portal location and assembled to form each arch. Through eight-inch-diameter holes, drilled from the surface of the parking lot above each portal location, cables were lowered and fastened to each arch. The arches were then lifted into place by a 115-ton crane. Once erected, the arches were secured in place with rock bolts and shot-crete, a pneumatically-applied concrete that is being used for rock support in the tunneling operation.

The photographs, taken by Steve Price of MacLean Grove, show the lowering of the steel into the pilot shaft, the lifting of an assembled arch by cables from the surface, and the successful installation of one of the arches.

According to Gustave Fleischer, project manager for the joint venture contractor, it was a difficult feat and a milestone for the station project. Installation of the arches now enables the contractor to excavate the trainroom, which will be 45 feet high, 70 feet wide and 445 feet long, beneath the parking lot and Somerville Avenue.



## Scheduling continued from page 1

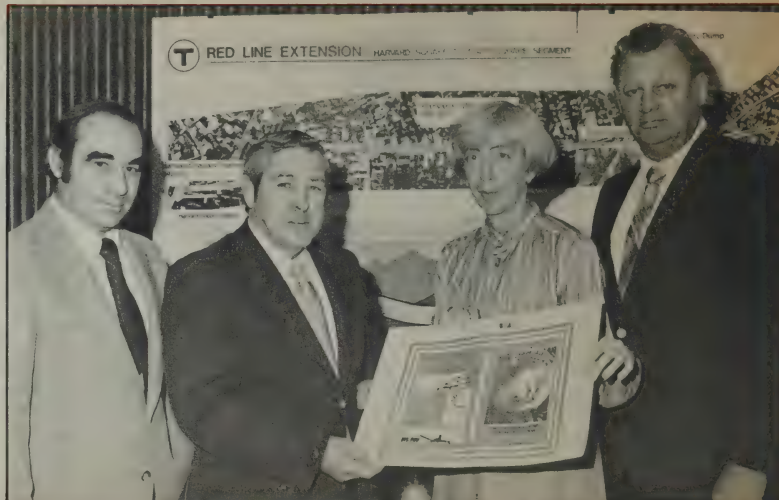
Atlantic. The Charles River Dam, the Verrazano-Narrows Bridge, the Grand Central Parkway connector to the 1964 World's Fair, the subway systems of Toronto, New York, and Philadelphia—all these have his name on them, and it's not likely that two-thirds of a mile of shallow tunnel from Davis Square to Harvey Street will deal out any surprises too big for him to handle. But still, no two jobs are alike, and even this one has the potential for adding a wrinkle or two to Wallis's cheerful, ruddy face. It's the face of a man who has obviously spent a lot of time out in the sun, making sure that big machines bite off no more and no less than they are supposed to chew and that horizontal and vertical lines are truly horizontal and vertical.

What might not be so obvious at first glance is the amount of time he has had to spend in offices like this one, planning every bite and plotting out the logic of every right-angle line. If the heft of hydraulics and the drumming of diesels are the muscle-power of a modern construction project, the scheduling is the brain. And the brain is what keeps the whole project from becoming a muscle-bound giant that falls clumsily over its own feet at every second step.

Wallis swivels thoughtfully in his chair to point at something tucked to the wall across from him. What it looks like is a game-board for one of those fiendishly complex war-games-the-kind where you get set up right after dinner and are still pushing tiny plastic tank battalions and cursing the fall of the dice at 3 a.m. But here the mechanized forces are machines for moving earth, and the purpose of the diagram of the wall is to eliminate the curses by eliminating the element of chance.

The diagram is a product of the C.P.M., Wallis explains—the Critical Path Method. A computer is used to break a project down into its components, and each component is given a box on the chart. Each box is compartmentalized, with spaces for a brief job-description, and the earliest and latest possible finishing dates. The end of one job is connected by an arrow to the beginning of the next, and the whole chart reads from left to right like a book: from an unbroken strip of ground to a finished tunnel.

But not all of the jobs which make up a project are equally crucial. Some can be delayed and completed at leisure, almost any time before the project is finished; others are locked into a sequence so remorseless that a couple of days' delay may blast the whole timetable to smithereens. It's these high priority jobs, connected by double



**Bookcovers**, featuring a photograph of construction of the Davis to Porter Tunnel and a step-by-step explanation of the drilling and blasting method of rock mining, were recently developed and presented by Merchants On The Line to children in both public and private schools in Cambridge and Somerville. Above, below etc. Paul Errico of Merchants On The Line (far left) and George Holland of the MBTA's Red Line Development Office present bookcovers to Marilyn McGinn, Elementary Staff Curriculum Supervisor for Cambridge Public Schools, and Joseph R. Hrub, Community Relations Coordinator for the Somerville Public School System.

Photograph by Errico Studio

arrows, that form the Critical Path.

"It lets the Authority see that project can be done and check on whether it is being done," Wallis summarizes.

(And why stop with subway tunnels, one wonders, when this 18-level organizational scheme could be applied so usefully to the unraveling bits and pieces of our daily lives? One can imagine Critical Path charts for preparing a five-course dinner, for packing the kids off to school, even for negotiating the sticky business of getting up in the morning.

6:31—Silence alarm. 6:36—Prop self on right elbow. 6:39—Extend right leg gingerly over edge of bed. And don't you dare stray from that Critical Path.) The C.P.M. is neither new to the world nor special to the Davis-Harvey Tunnel. It was developed by U.S. Navy shipyards during World War II when they discovered that there was no other way to get so many Liberty Ships into the water so fast; and it is used for all MBTA construction projects.

But there is one feature of the Davis-Harvey tunnel that makes C.P.M.

especially appropriate: it's the width, or rather the narrowness, of the right-of-way within which the contractors have to work. In a strip whose width varies from a maximum of 70 feet to a minimum of only 45 must be laid a tunnel 31 feet wide, with additional space for pump rooms and vent shafts and for a haul road to keep the big dump trucks off the city streets. Three men changing clothes simultaneously in the same telephone booth might have an easier time of it.

Roy Wallis, however, is not to be daunted. He is ready to build one of the largest stretches of slurry wall ever attempted and to cope with subsurface water problems that may force him to construct deep wells and sand drains. Most of all, he is ready to maintain the plan which will keep the job from turning into a 3800-foot-long traffic jam. Already, three months into the contract, the left side of the chart is bright with boxes which have been penciled in under the symbol of completion.

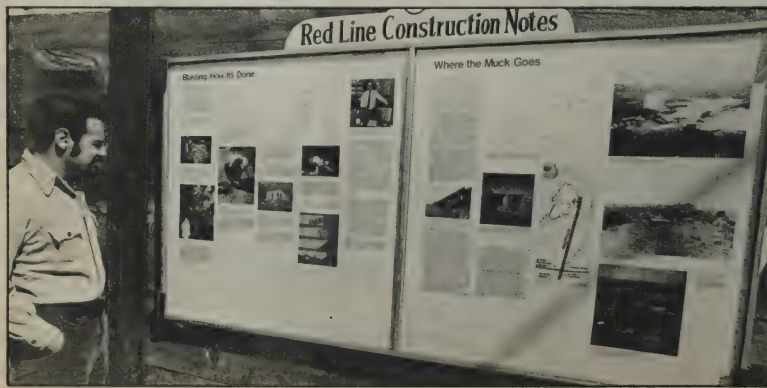
"We like to put a few easy ones early

on," Wallis grins. Red boxes, it seems, are good for morale.

Five minutes later, after I've left Wallis, I am standing near the intersection of Harvey Street and Mass. Avenue. Inscribed on the pavement are the day-glo graffiti ("H2O—4' 9'") that show where things like water mains and electrical cables are, or where they'll go when the tunnel comes through. A guy with a bottle of Bud in his hand stands in the doorway of The Brickyard Bar and watches two bulldozers pushing dirt around on the east side of the Avenue.

In front of me, to the west, constricted between two shiny boundaries of brand-new chain-link fence, part along one side with a grey ribbon of haul road, the barren strip of right-of-way leads the eye toward the distant green beacon of the W.R. Grace water tower. In three years, this strip will be a linear park with trees, benches, and paths, and with a subway tunnel running underfoot. But now, for Roy Wallis and his men, it is simply a Critical Path.

T



**Curious Sidewalk Superintendents** have been gathering in front of plexi-glass-covered display panels at construction sites along the route of the Red Line Northwest Extension. The panels, developed by the Cambridge Arts Council and the MBTA's Red Line Development Office, tell the story of the Red Line Northwest Extension—Past, Present and Future. (Above, below etc.) is one of three panels, located in Porter Square, which describe the drilling and blasting process, and the hauling of tunnel and station excavation materials to the Cambridge City Dump. Other panels are located in the Harvard/Brattle Station and at Johnson Gate in Harvard Square, in front of the Harvard Law School on Massachusetts Avenue, Cambridge; at the intersection of Oakfield Street and Massachusetts Avenue, Cambridge; and in Davis Square, Somerville.

Photograph by Betsey Cole

Edward J. King  
Governor

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Massachusetts Bay  
Transportation Authority  
60 High Street  
Boston, Massachusetts 02110

Barry M. Locke  
Interim Chairman

**Red Line Northwest:**

Francis M. Keville  
Assistant Director of Construction—NW

John A. Carey  
Project Manager  
Davis Square to Alewife

George C. Wey  
Project Manager  
Harvard Square to Davis Square

George J. Holland, Jr.  
Program Development Agent  
Red Line Development

Charles D. Pizzo  
Red Line News Writer and Coordinator

FOR MORE INFORMATION, CALL  
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# RED LINE NEWS

Northwest Extension

Number 14

Winter 1981

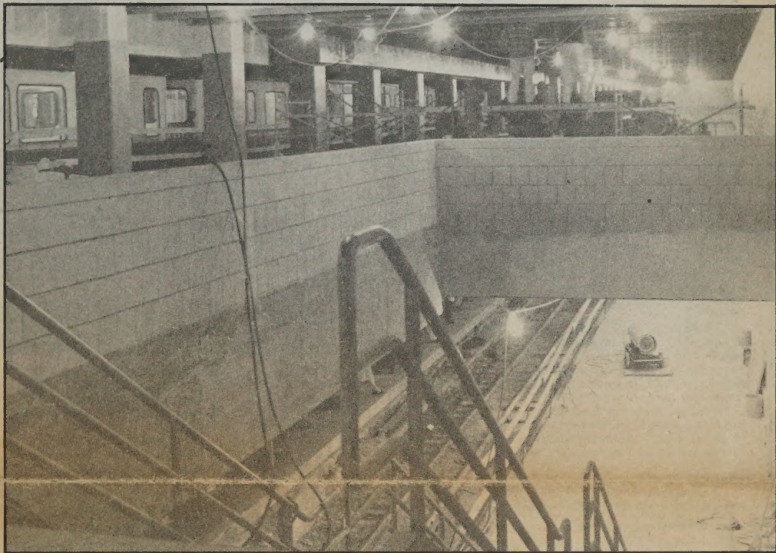
## Harvard/Holyoke Station Nears Completion

A temporary subway station named Harvard/Holyoke Temporary Station will open and the existing Harvard Square Station, including the famous kiosk entrance, will close in early February for construction of the new Harvard Square Station of the Red Line Northwest Extension.

Harvard/Holyoke Temporary Station, which includes two new temporary entrances on Massachusetts Avenue — one at Leavitt & Peirce, Inc., near Holyoke Center and the other at the Cambridge Savings Bank near Dunster Street — is scheduled to open at 8 a.m. on Sat., January 31, 1981. Its opening will coincide with the closing of the existing station and kiosk, and is considered a major step in the multi-phased construction sequence for the new Harvard Square Station.

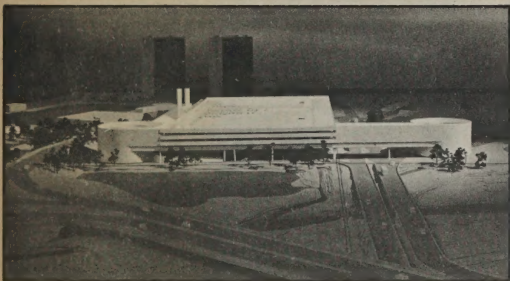
Harvard/Holyoke Temporary was built to allow the station contractor, Perini Corporation, to demolish the existing station and construct the new Harvard Square Station without interrupting Red Line service to and from Harvard Square. Located basically in the same area as the existing station, the main difference is that passenger platforms for the temporary station are located on the opposite side of the tracks from the old platforms. By covering the train platforms to the south side of the tracks, the contractor will be able to work in the north side of the station without interfering with passenger activity.

Continued on page 2.



Photograph: James E. Miller, MBTA  
A view of the upper and lower platforms of Harvard/Holyoke Temporary Station, which at the time this photograph was taken, were being cleaned and painted, in preparation for revenue operations. The upper level is the temporary outbound platform. The waiting train, (pictured top left corner) separates the temporary platform from the old platform, which will be closed when Harvard/Holyoke opens. The stairway (lower right) leads to the temporary inbound platform. To its left are the inbound tracks.

## Contract Awarded for Alewife Station/Garage Complex



A view of the Alewife Station/Garage Model

Photograph: Steve Rosenthal

addition, preparations are beginning for construction of the station walls utilizing the "slurry wall" method.

Work to be performed under the contract includes cut-and-cover construction of the station and train tunnels, construction of a four-level 2,000 car parking garage to be built on concrete piles, a pedestrian underpass at Alewife Brook Parkway, and a temporary detour for traffic on Alewife Brook Parkway during the construction period. The contract is scheduled to be completed by November 1, 1983.

Brightly decorated and illuminated through the use of both natural and artificial lighting, the complex will be an attractive and pleasant facility for the daily and occasional rapid transit and bus passengers. Wallace, Floyd, Ellenzweig, Moore, Inc., of Cambridge, designed the complex. Work-

ing with WFEM as subconsultants have been the architectural firms of Sverdrup & Parcel of Boston and Le Messurier Associates of Cambridge.

During construction, key personnel for Perini Corporation will be Chris McDermott, Project Manager; William Bertonazzi, General Superintendent; and John Mullin, Project Engineer. Overseeing construction work for the MBTA will be John Carvey, Project Manager; George Murphy and James Dyer, Resident Engineers; and George Dunn, Office Engineer.

More information about the Alewife Station and Garage Complex project may be obtained by calling the MBTA Red Line Development Office at 628-1845 or 722-3352. A 24-hour hotline also is available by calling M-B-T-A-R-E-D.

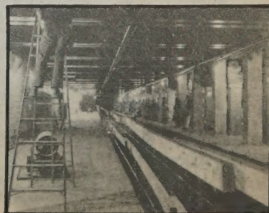
**PRE-CONSTRUCTION SURVEYS** — The MBTA continues to offer property surveys to Somerville and Cambridge property owners whose homes and businesses are in close proximity to Red Line Northwest construction activity. Inspection reports, including color photographs are prepared by an MBTA consultant and copies are made available to the property owners at no cost.

For more information about the survey program, please contact George Holland, Red Line Development office, 68 Day Street, Somerville, at 628-1845.

Preparations are underway for the construction of the Red Line Northwest Extension's Alewife Station and Garage Complex.

Perini Corporation of Framingham was awarded the \$78,282,984 construction contract on December 10, 1980, by the MBTA Board of Directors. A Notice to Proceed was issued and they have begun grading activity at the station site, adjacent to Alewife Brook Parkway, North Cambridge. The contractor is also beginning work related to the relocation of a 48-inch sewer line, of which about 900 lineal feet must be relocated for station construction. An 18-inch sanitary sewer and a 10-inch water line also must be relocated. In

### More about Construction pages 2 & 3





# Harvard/Holyoke Station Nears Completion

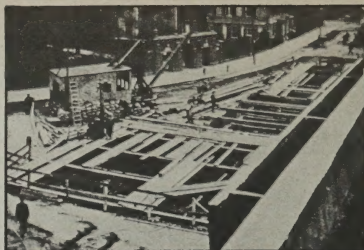
Continued from page 1

During the next few months, demolition will begin in the north side of the station, initially from the surface of Massachusetts Avenue. One of the first major steps — expected early in February — will be the removal of the kiosk, which will be dismantled and stored for the duration of the construction project. Under an agreement with several federal, state and municipal agencies responsible for preserving matters of historical significance, the MBTA will preserve the kiosk, built in 1925. Although it will not be used as a subway entrance, the kiosk will be rebuilt for use as a newsstand, in the same general area, near a new entrance for the new Harvard Square Station.

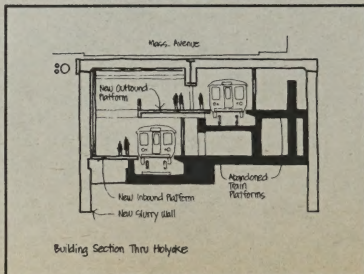
With the removal of the kiosk, the subway entrance opening will be decked over with timber. The adjacent temporary Out-of-Town newsstand, which stands on skids for easy moving, will be turned and moved back slightly so that northbound traffic on Massachusetts Avenue can be shifted over onto the decking. This will allow the contractor, working on the surface of Massachusetts Avenue, to excavate and demolish a portion of the roof of the existing station under the Harvard Yard between Wadsworth and Lehman Gates. Demolition of other portions of the station will follow.

Harvard/Holyoke Temporary Station is one of two temporary stations required for construction of the new Harvard Square Station. The other, Harvard/Brattle, located on Eliot Street near the Kennedy School of Government, opened at the onset of Harvard Square Station construction in March of 1978 to accommodate bus service during the demolition of the old Harvard bus tunnels and construction of new tunnels.

Both temporary stations will serve Harvard Square until the open-



▲ Harvard Square Station Construction 1909.



Building Section Thru Holyoke



ing of the entire 3.2 mile Red Line Northwest Extension to the Alewife Brook Parkway, now scheduled for early 1984. A complicating factor in the Harvard Square Station project is the existing route of the train tunnels through the station, extending south-easterly under Brattle Street to the old train yards (where Harvard/Brattle is located). Until the north-west-bound tunnels of the new extension are

operational, the final stages of Harvard Square Station, including construction of the mezzanine and new permanent entrances, cannot be accomplished.

Harvard/Holyoke Temporary Station, like Harvard/Brattle, is an attractive facility, brightly painted in red, crimson and beige. Stairways from the entrances at Holyoke Center and Dunster Street lead to a small

mezzanine area, with the outbound platform accessible on the same level and the inbound platform located down a flight of stairs.

Directional signs to assist Red Line passengers with the adjustment are being installed for the opening.

T

**There's more to Davis Square than meets the eye**

**HOLLAND STREET**

- 88 KALINSKE RESTAURANT
- 89 DAVIS 500 BAR/CLUB - 30 A DRILL INC.
- 90 LEROY SOUND - RECORDS - STEREO EQUIP
- 91 CARROLL'S BATTERY SHOP
- 92 THE PRINT SHOP - PRINTING
- 93 ROBERT J. ROACH - OPTOMETRIST
- 94 ROBERT V. AMATEO - DENTIST
- 95 BEAUTY CREATORS OF JOURNALISM
- 96 ART ART - GALLERY
- 97 RIDER & PULLER - CHOROPHONIST
- 98 KAREN BEAUTY SALON
- 99 FLAMMAR BEAUTY SUPPLY
- 100 ALL STAR TROPHIES AND AWARDS
- 101 THE VENICE - RESTAURANT
- 102 SOMMERSET ELECTRIC
- 103 A. BELTRAN & SON - LOCKSMITH
- 104 JIM THE TAILOR
- 105 WHITE SEWING MACHINE REPAIR CO
- 106 RUCKFORD APPLIANCE SALES & SERVICE
- 107 HOOBING SPA - DROGGERIES

**BROUGHT TO YOU BY**

**THE MERCHANTS ON THE LINE**

**There is More To Harvard Square Than Meets The Eye**

**THE MERCHANTS ON THE LINE**

**DIRECTORY SIGNS** — to assist shoppers, merchants and business people in Red Line Northwest construction areas recently were installed as part of the MBTA's Merchant on the Line Program. The signs are in Harvard Square, near the site of the new Harvard Square Station; on Massachusetts Avenue, near the site of the Garfield Street access shaft of the Harvard to Porter Tunnel; and in Davis Square, at the site of the new Davis Square Station. Perini Corporation, contractors for both Harvard Square and Davis Square Stations; and Morrison-Knudsen Co., Inc., Harvard to Porter Tunnel contractor, erected the signs in cooperation with the MBTA and the Merchants on the Line, a coalition of businesses along the route of the Red Line Northwest Extension.

Edward J. King  
Governor

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Barry M. Lookes  
Chairman

**Red Line Northwest:**

Francis M. Keville  
Assistant Director  
of Construction — NW

John A. Carey  
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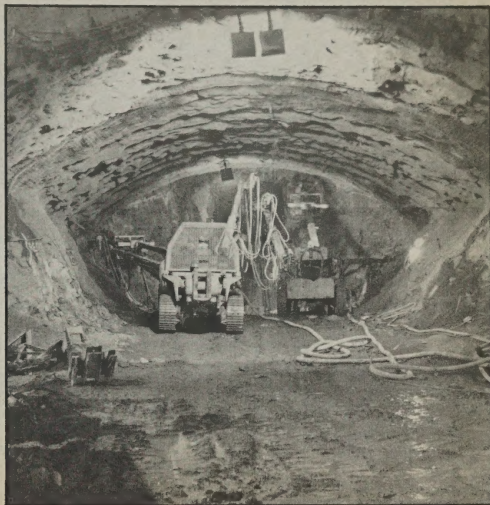


# Construction Update — January 1981



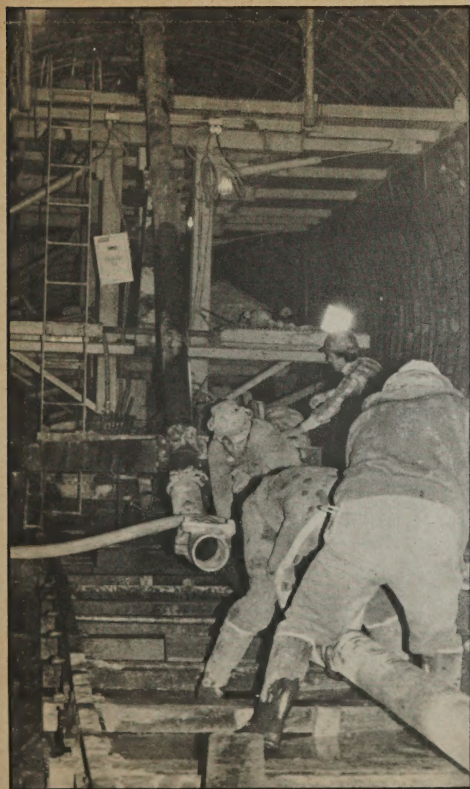
▲ A fully concreted section of the Harvard to Porter Tunnel nears completion at Porter Square. The machine, pictured at the far end of this tunnel view, used to carry and install concrete forms for the placement of the tunnel arch, operates on the temporary train tracks.

Photograph: James E. Miller, MBTA



▲ Drilling equipment prepares for continued excavation of a cavern that will be the location for the train room and passenger platforms for Porter Square Station, 130 feet beneath the square.

Photograph: James E. Miller, MBTA



◀ Tunnel workers prepare for an arch pour in the Davis to Porter Tunnel. The pipe being adjusted by workers is a "slink line," which carries the concrete to the site of the pour. In order to get the concrete into forms for the placement of the tunnel arch, a specialized rig, called a "slink line car" (pictured in the rear) holds the pipe.

Photograph: Perini Corporation

**HARVARD SQUARE STATION** — Perini Corporation, contractor. In addition to the work on Harvard/Holyoke Temporary Station (page 1), the northerly section of the new Harvard Square Station, under Flagstaff Park, is being lined with concrete. The contractor has nearly completed installation of the decking on Massachusetts Avenue, just south of Flagstaff Park; and is working beneath the decking, demolishing the former bus tunnels and excavating for the new permanent station.

**HARVARD TO PORTER TUNNEL** — Joint Venture of Morrison-Knudsen, White & Mergentime, contractor. The deep bore tunnels between Porter Square and the access shaft at the intersection of Massachusetts Avenue and Garfield Street are being lined with concrete. All rock excavation from the Garfield Street shaft has been completed. Soft ground excavation from Harvard Square, heading toward excavation from the Garfield Street shaft, is expected to resume this month. The south portal shaft in Porter Square, partially excavated by the tunnel contractor, has been turned over to the contractor for Porter Square Station for final excavation.

**PORTER SQUARE STATION** — Joint Venture of Slatery MacLean Grove, contractor. Excavation of the 130 foot deep train room, beneath the Porter Square Shopping Center parking lot, is continuing, with approximately one-third of the excavation completed. Preparations for excavation of the north vent shaft, located in the parking lot, are underway. Meanwhile, the contractor is excavating and installing the

earth support system for the station's mezzanine on Somerville Avenue. Timber decking is being installed on the surface of Somerville Avenue as part of this activity. Rock excavation also is underway in the south portal shaft, located next to the Commonwealth Lock Building in Porter Square.

**DAVIS TO PORTER TUNNEL** — Perini Corporation, contractor. All excavation for this tunnel segment has been completed. The outbound tunnel between the Grove Street shafts and Porter Square has been fully concreted, as has the invert (bottom portion) of the inbound tunnel between Porter Square and the Grove Street access shafts. The contractor is now heading away from Porter Square, installing reinforcement steel and pouring concrete for the arch of the inbound tunnel. Estimated completion date for this tunnel segment is May 1981.

**DAVIS SQUARE STATION** — Perini Corporation, contractor. About two-thirds of the excavation required for Davis Square Station has been completed. Tiebacks, required to reinforce the underground wall of the 55-foot deep station, are being installed. During the next few months, excavation and installation of the supportive tiebacks will continue.

**DAVIS SQUARE TO HARVEY STREET TUNNEL** — Joint Venture of J. F. White Contracting Company, Morrison Knudsen and Mergentime Corporation, contractor. Construction of the tunnel walls, utilizing the slurry wall method, is underway east of Cameron Avenue. About 90 percent of the guidewalls for the slurry construction have been installed. The contractor is also relocating utilities at Massachusetts and Cameron Avenues, and is preparing to begin slurry wall construction in the rock segment of the cut-and-cover tunnel, just west of the Davis Square Station project.

**ALEWIFE STATION/GARAGE COMPLEX** — Perini Corporation, contractor. Preparations for construction of this complex are beginning (page 1).

**BEYOND ALEWIFE** — two remaining contracts for construction of tunnels are expected to be advertised for bid this winter. These include a 670-foot-long tunnel segment, between Harvey Street and Alewife Station; and the 1,250-foot-long tunnel segment that includes the rail track turn-around beyond the Alewife Station/Garage Complex in North Cambridge.



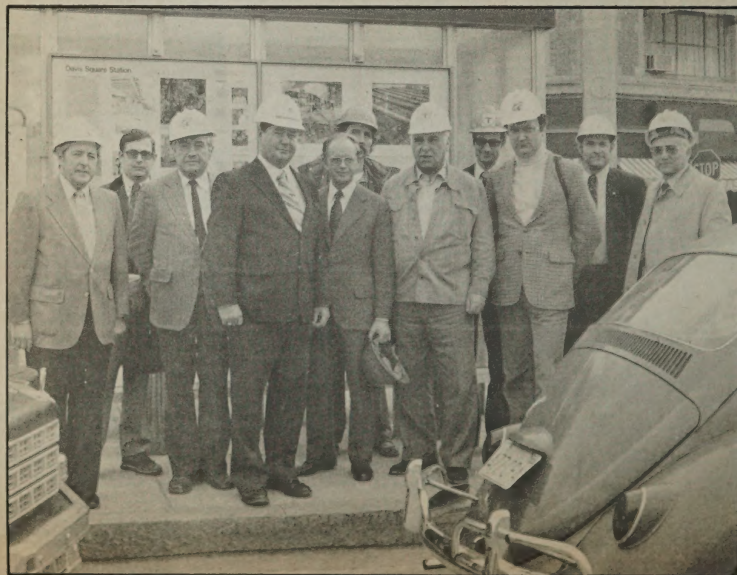
## Construction Update — January 1981

Continued on page 3.



Photograph: J. F. White Contracting Company

Slurry wall construction continues on the underground walls of the cut-and-cover tunnel segment between Davis Square, Somerville, and Harvey Street, Cambridge. At left is a retaining wall.



**DISTINGUISHED GUESTS FROM GERMANY** — Six German officials, including representatives of the Munich Municipal Council and engineers for the Munich Transport System recently visited the Red Line Northwest Extension project during a two-day visit to Boston for a general tour of the MBTA and engineering seminar at MIT. The group paused for a photograph in Davis Square, Somerville, while viewing the Davis Square Station display panel as part of the overall Red Line tour. Host for the tour was Francis M. Keville, the MBTA's Assistant Director of Construction — Northwest Region, fourth from the left. Other MBTA personnel assisting were George Holland, Program Development Agent, for the MBTA Red Line Development Office, far left; Charles Steward, MBTA Environmental Coordinator, second from left; John Williams, MBTA Project Manager of Design/Development, rear center, and Miller Day Malcolm, Architectural Coordinator for the MBTA, second from right. From Boston, the German officials traveled to Baltimore, Washington, San Francisco, and Mexico City to tour their transportation systems.